SUPPLEMENT.

The Mining Journal,

RAILWAY AND COMMERCIAL GAZETTE:

FORMING A COMPLETE RECORD OF THE PROCEEDINGS OF ALL PUBLIC COMPANIES.

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Original Correspondence.

THE SCOTCH IRON TRADE—No. XI.

THE GOVAN IRONWORKS.

The Govan Ironworks were established about the year 1834 by a company, of whom the chief was William Dixon, who has already been referred to in our notice of the Calder Ironworks. His partners were James Christie, Matthew Pearson, and Alexander Christie, the latter of whom acted as manager. The partnership thus formed in 1824, owing to the death of Mr. Dixon's father, was continued until 1835, or a year subsequent to the projection of the Govan Bar Ironworks (which were first known as the Townhead Works), when the whole of the works, both at Calder and Govan, passed into the hands of Mr. Dixon, who died in 1862, leaving to his son, Mr. William Smith Dixon, the present proprietor, the whole of his large estate. Mr. W. S. Dixon, who was born in 1824, and who married in 1851 daughter of Dr. Napier, of Singapore, and granddaughter of the editor of the "Encyclopædia Brittanica," has carried on the works with all the energy and enterprise that marked his father's management, and the Govan Works, having been enlarged and improved from time to time, are now one of the largest and most complete establishments in Scotland, combining as they do all the necessary appliances for the manufacture of iron, not only into "pigs," but also into malleable iron and castings.

The Govan Ironworks are situated to the south-east of the centre of Glasgow, and they are almost the only works of their kind that may claim to belong to, and form part of, the city. Their flames cast a lurid glare over the whole transpontine area of Glasgow, causing strangers, and very often old inhabitants, to go out of their course, expecting to find some very large and disastrous fire. But yet the works are sufficiently isolated from the residential part of Glagow to get rid of any positive nuisance to the inhabitants, always barring those who are connected with the establishment and reside in its immediate vicinity. Altogether, the works cover upwards of 20 acres of ground, although in regard to structural and relative arrangement, they are scattered and irregular. They are connected by a private line with the Hamilton and Barrhead Railway on the one hand, and the City Union Railway, from which they obtain access to the North British and Glasgow and South Western lines, on the other. Mr. Dixon also owns several private lines, all of which radiate from his numerous collieries in the immediate neighbourhood of the works towards the depôt, where the minerals are stored. Some of the pits connected with the Govan Works have been in regular use for many years, and yield a large return. It is a common tradition that Mr. Dixon's collieries go underneath the bed of the Clyde, and that their workings stretch right into the heart of the city. It is not very long since a foolish alarm got abroad, owing to the partial subsidence of a tenement of houses in a densely populated locality, that the earth was undermined by the coal workings from the Govan pits. The main source of the coal supply of the house-holders on the south side of the Clyde is derived from Govan Colliery, the supplies of minerals for the works being taken from Bishopbriggs, Ibrox, near Paisley, Aird's Moss, Johnstone, and Carfin. The new field which Mr. Dixon is opening up on the Duke of Hamilton's grounds at Blantyre, near Hamilton, will also be called into requisition for the supply of the Govan Works, some of the older workings nearer Glasgow being now almost exhausted. Besides this, however, Mr. Dixon will find ready means of access to the rich virgin field of coal in the neighbourhood of Bothwell, which is about to be developed by the Messrs. Baird, of Gartsherrie, and from which it is expected the public and public works will in the future be mainly dependent for their supplies. The railway which it is proposed to construct with the view of opening up this field will pass very near to the Govan Works, which are, therefore, likely to be prospectively well provided for. There are only five furnaces in blast at Govan, and they are all of the old-fashioned kind. Until within the last 12 months one of this number was always kept out of blast, but the extraordinary demand made upon Scotch pig-iron makers during the past year has necessitated the whole resources of the works being taxed to the utmost. It is a little curious that Mr. Dixon has not taken advantage of the present tide of prosperity to complete the erection of a sixth furnace, which was commenced about three years ago, but abandoned after it had been carried to the height of 12 ft. It would seem as if Mr. Dixon, in common with other Scotch ironmasters, was disposed to hang on meanwhile until some trump card is turned up, for what between the introduction of new modes of working and new appliances it is not difficult to forecast a near revolution in the economy of the pig-iron manufacture. In such a case, a present gain by the extension of works might lead to an ultimate loss, and capitalists will do well to possess their souls in patience a little longer until some more definite and intelligible data has been established. The furnaces at Govan are all of the same height—viz., 45 ft. to the charging ports, and 59 ft. to the tunnel head. The diameter of the hearth is 7 ft. It has been in contemplation, we understand, to increase the height of some of the furnaces, with the view of comparing the results obtained under the different conditions of short and tall furnaces, but this idea is not likely to be carried out in the meantime, at least so far as any of the existing furnaces are concerned. The average production of the furnaces is 14 tons each per shift, or 28 tons in the 24 hours. Thus the daily production of the works is 140 tons, or 840 tons per week. Nearly 200 tons of coal, in addition to between 80 and 90 tons of ironstone, is required per diem to supply the furnaces and their accessories. Surely it would be worth Mr. Dixon's while to turn his attention to the utilisation of blast-furnace gases, which would reduce this enormous consumption of coal to a mere handful, especially now that fuel is so terribly enhanced in value for both manufacturing and domestic purposes. The blast for the furnaces is generated by means of a high-pressure engine of 320 horse-power, which occupies a large building placed midway along the line of furnaces. This engine, which was made about 30 years ago at Hill-street, Glasgow, is one of the largest land-engines in Scotland. It has two blowing-cylinders, each 8 ft. in diameter, and the length of its stroke is 11 ft. 3 in. The beam which is 30 tons weight, and 30 ft. in length, has double pistons at the blowing end. The usual charge for Govan No. 1 brand is about 2 cwts. Spanish ore, 2 to 3 cwts. hematite, 3 cwts. blackband, and 2 to 3 cwts. lime. There is no other feature about the works which calls for special notice. The gases and smoke from the heaters are carried into a chimney about 150 ft. in height at one corner of the works, and the boilers discharge their smoke into a stalk of similar height at the opposite corner of the establishment. At the present time the Govan brand is quoted at 97s. 6d. for No. 1, and 96s. 6d. for No. 3.

The Govan Works were originally started with the view of carrying on the manufacture of bar-iron, and since their commencement they have been noted both for the extent and for the quality of their production of this material. For a number of years past they have turned out about 20,000 tons per annum of bar-iron. Altogether the malleable department, which is immediately adjacent to the blast-furnaces, comprises 50 puddling-furnaces, two guide mills, two merchant mills, and a plate mill. It was here that Gorman's patent heat-restoring gas-furnace, which was fully described lately in these columns, was first erected, in the year 1864. These works also are entitled to claim the merit—if there be any—of having first introduced Siemens's furnaces to Scotland. Gorman's furnaces are still in use, but they are found very liable to go wrong, and we understand that the puddlers have a preference still for the old reverberatory furnace, which, perhaps only because he understands it better, he can more easily manage. Five engines—two horizontal, and three beam—drive the machinery in the puddling department, and the smoke from the furnaces, after passing into three large main culverts, is carried into a couple of chimney stalks, each about 140 ft. in height. The arrangement of the puddling department is very compact, and economy of space and labour appears to be carefully attended to. In addition to the blast-furnaces and malleable department there is a large foundry carried on in connection with the Govan Works; but although it has turned out a lot of very heavy machinery, there is nothing about its arrangements or appliances calling for mention here.

In all its departments the Govan Works employ nearly a thousand men, and taking the Calder Works and his mineral leases and operations also into consideration, Mr. Dixon's employees will muster to the tune of upwards of 3000—thus giving him the third place among the large employers of labour in the Scotch iron trade—the two above him being, as we have already indicated, Messrs. Baird, of Gartsherrie, who employ 9000, and Messrs. Merry and Cuninghame, who employ 5000 hands.

SILVER MINING IN AMERICA.

Sir,—Having referred to Nevada in my last article on the above subject, I come now to speak of Utah—the wonder land—wonderful for its social peculiarity, Polygamy, but most wonderful for its mines of silver. The youngest of the mining regions, it is almost the richest. Exclusively possessed by the Mormons until the completion of the Pacific Railroad, a people whose interests lay in the direction of developing agriculture more than mining, the latter pursuit, in consequence, was neglected, supposing always that the Mormons knew of the existence of the mines. The discoveries are credited to soldiers who were stationed in the Territory in the years 1865 and 1866. Of course, the secret could not be long kept, and from that time forward a mining population has flowed in with steadily-increasing volume. No better idea of the absolute developments up to the closing in of last winter can be given than by quoting from a statement prepared and published in the *Mining Journal* last fall by one every way competent to know:—

"From the early part of the spring of 1870, when mining began to be entered upon in Utah with any degree of energy, to the present, the advance made in the development of the mines then and subsequently discovered, as well as in prospecting for and locating additional mining districts, building reduction works, increasing amount of shipments of both ore and bullion abroad, stands unequalled in the history of the early development of any mineral country yet discovered for a like period.

In the summer of 1870 there were located in Utah seven mining districts, known to contain valuable and precious metals, while at this date that number has been increased to 48, with discoveries still going on. At that period the number of mines worked practically was 22; to-day over 800 mines are under substantial development. Then there were eight paying mines, yielding to the locators an income from each of $4000 per month, with twelve others giving a monthly profit of $1000 and upwards, while the Emma at that time paid a net monthly profit of $20,000. Now there are ten mines in the Territory which pay monthly a profit of $20,000 each; 50 mines paying over $3000 monthly; 1000 mines paying over $1000 monthly; while the Emma is now, and has been for the past nine months, averaging fully $250,000 per month gross. The Flagstaff exceeds $45,000 per month; with about 300 other mines, the ores of which, not being reduced or shipped abroad, are accumulating at the mines ore to the value each month of from $1000 to $5000 each. At the time named there was one efficient but small furnace in the Territory; to-day there are 19 well-constructed blast-furnaces, with an average capacity of 15 tons each daily, besides six others in course of construction, with three quartz mills complete, and two in course of construction, and three sampling works. The bullion product in the same time being increased from a few small sample lots to regular monthly shipments of from 1400 to 1500 tons, of the gross value of $360,000, with an increase in the value of the ore shipments of from about $30,000 to $275,000 monthly. Add to this the advance made in the opening of the coal fields of the country, as well as in the utilisation of the very superior grades of iron ore, by its manufacture into pig-iron for local purposes in the southern part of the Territory, with the rapid strides making in the construction of the Utah Southern Railroad, when, all combined, will present a more rapid rate of progression than is to be met with in any part of the mining world."

By papers just to hand it appears that in the Cottonwood district alone, a small region of territory, exclusive of six principal mines—the Emma, Flagstaff, Davenport, Wellington, Montezuma, and Savage—there was awaiting transportation 16,000 tons of ore, worth at least $500,000. Other districts are showing a corresponding degree of activity. The following from the *Alta Californian* is pertinent to the subject:—

"The production of bullion by the mines in this State and Nevada, as well as Utah, without doubt at this moment exceeds any previous rate of production, and the results, with the new discoveries being constantly made, are astonishing. Of these some extraordinary instances have been made west of Utah Lake, in a locality which admits of transportation by lake to the railroad, at the low rate of $5 to $7 per ton, while those south-west of the lake are taking larger proportions both in respect of extent and value. It has been remarked that west of the mountains the metallic productions are gold, as is also the case at the east in Colorado; and the magnificent theory presents itself that the mountain track, 700 miles broad, from the California line east, is running north and south a gorgeous belt of silver between two broad lustrous fringes of gold on the east and on the west. The silver towards the centre of that region seems in many places capped with base metals, which give place in the working to the purer silver in great richness. Proceeding west, the ore has a considerable proportion of gold, which in the State of California drops the silver, and displays itself in placers and in old river beds, as well as in quartz veins. The success with which that sterile region east of the mountains is explored for silver assumes the marvellous, and the production goes on with increasing volume. The great want seems to be facilities for smelting. Along the Salt Lake region wagons from a long distance bring, with great labour and cost, the ores from the mines to be transmitted to the East, and even to England, for working. The erection of local furnaces seems to be a great want; this want may, however, be a temporary one. The Rocky Mountain coal, which is in great supply, may be readily coked on the spot, and supply the place of charcoal at a great reduction in cost. The Eureka Consolidated Mine, as a notable instance, has produced $400 worth of ore, containing lead, which must be smelted. Suddenly it (the lead) goes out, leaving the ore as rich in silver and gold, but requiring only to be amalgamated at a small cost. The same thing has happened in the Ely district, and by analogy may affect all that broad region, which unmistakeably shows the former presence of heated salt water. In any event, the production of the metals has received a great stimulus, and has already affected general business. The abundance of money is one of the evidences of it, and the increase of business with jobbers is still more satisfactory."

At present the following English companies are operating in Utah—to wit, the Utah, Emma, Flagstaff, Saturn, Mammoth, Copperopolis, Camp Floyd, Utah Smelting Company, and Last Chance. The first-named has been organised about a year, and will, no doubt, soon be on the dividend-paying list, as its furnace has started again under good prospects. The Emma and Flagstaff are paying regularly monthly dividends of 1½ to 2 per cent. respectively. The Camp Floyd will also, probably next month, as its mill is just about starting, and the mines of the company are proving first-class, and the company besides are fortunate in having a manager of ability and vigour. The Saturn and Mammoth Copperopolis, it is understood, although started under most inauspicious circumstances as to time of year—winter, and of unprecedented severity—will soon be, the former at least, in a paying condition. The Last Chance, as is well known, is only a month or so old, but is good for all that is claimed for it. The celebrated Davenport Mine, in Cottonwood district, it is understood, is about passing into English hands; if so, it is a matter of felicitation to the lucky purchasers. It is now true that English investors are getting the cream of the Utah mines, and their action is stimulating capital elsewhere to a competition for these properties in the future; and as a consequence a very greatly increased productiveness is apparent. In fact, it has aroused American capital to the fact that mine owners were not disposed to wait its convenience, but that they would offer their mines wherever the best market was to be found. Of the eight English companies now operating in Utah, it is not possible that any one of them will prove a failure. Possibly these shares may be rigged to a point in the case of one or two of them that will produce disappointment to some. The immediate future of the Flagstaff and Camp Floyd companies are most encouraging, as also that of the Utah, so long under a cloud. That most general satisfaction with Utah investments will be the truth that a very few months will now determine.

X. X.

GOLD MINING IN COLORADO—No. V.

Sir,—The methods of working the ores of Gilpin County, it will be seen, have been limited to the stamp mill for the second-class ores and smelting for the first-class. The mill is aided in some cases with the Chilian mills, or an improved form of them, which are placed so that the flow of the tables must pass through them. Heavy particles of sulphuret, escaping mercury, and coarse mineral are delayed, and, in part at least, re-ground, or again amalgamated. Good results are obtained where these mills are carefully attended to. Others use blankets for stopping the heavy particles. These blankets are washed, and the catch is then panned—the Bartola, so called, being generally used. Where any effort is made to save and re-work the tailings, means are taken to check the flow outside of the mill, so as to allow the heavy part of the pulp to sink, afterwards to be shovelled into the general pile. In the water which passes on to the main stream there is carried in suspension a very important percentage of valuable mineral; this I have termed loss in the flow. Perhaps it would be interesting to give some examples of this loss:—

		Gold.	Silver.
August 21, 1869.	Sample of tailings taken out from creek distant from mills	$39·21	$ 8·58
January 12, 1870.	Samples taken in same way	33·08	8·84
July 7, 1870.	Ditto ditto	33·07	10·40
Ditto.	Ditto ditto	31·01	3·74
Slimes from box so placed that the finest slimes would have time to precipitate—sample		12·40	2·47

Valuable tailings can be gathered many miles below all the mills. The silver sulphide to a great extent is borne along with the water still further, being too light to fall whilst there is a current.

The smelting works were established in 1867. The ore is sampled in the yard of the works, assayed and paid for by the ton, as per schedule, some items of which have already been stated. The ore is then placed in piles on wood, which is fired, and burns for some six weeks, driving off a large percentage of the sulphur, and oxidising a large part of the iron. These piles are then removed to the smelting furnaces, reverberatory, and smelted, so that 7 or 8 tons are reduced to 1 ton of matt, containing from $1200 to $2000 in gold and silver, and from 40 to 60 per cent. of copper. This matt is then sacked and shipped to Swansea for separation. The buddled tailings are roasted in reverberatory calcining furnaces, and then mixed with the ores roasted in the piles when furnaced.

These works are conducted with ability, as well financially as metallurgically, and have been a great success in both respects. Perhaps no smelting works in the world have produced so large profits to owners. Being the pioneer enterprise, the managers have acquired a monopoly, and are most thoroughly alive to the importance of retaining that advantage so long as possible. During the last year other works were put up for smelting and separating. These works were successfully started, but the impecuniosity of the projectors compelled them to close down.

Works for chlorinating upon the Plattner system were started and kept in operation for a year or so, by a practical operator, who had acquired the routine knowledge of the system as an employee in California. Not thoroughly versed in the chemistry of metallurgy, he found difficulty in treating the complex ores of Gilpin County, having been taught to treat only the simple sulphurets of California. It was found by him an expensive "laboratory and school of mines," his own school, with hired men, costly, novel, and high priced ores. He learned how to treat the ores successfully, but made no profit as a pupil in his own establishment. For some months no work has been carried on here, the excuse being—"effort to secure adequate capital to make the enterprise profitable." The theory of treatment was correctly established when smelting was commenced, requiring a selection of the ores as they came from the mine—viz., separation. The amount of free gold in the ores of Gilpin County is not large. All of the precious metals, or nearly all, are associated with the sulphides; all the silver, not in alloy, being itself a sulphide. Hence a close separation of the mineral from the gangue is of first importance. This cannot be done by the hand only—that is, only 5 per cent. of the ore raised has been, heretofore, hand selected out, whereas the ore raised actually contains not less than an average of 20 per cent. of first-class ore disseminated through the gangue, or vein

matter. This 20 per cent. is sent to the mill, contained as it is in the vein matter, or gangue, it is milled, a part of the precious metals obtained in the battery and on the plates, the larger part going out to the pile of tailings, and into the creek. The partial recovery of this loss has already been explained.

A water separation is almost impracticable, for many reasons, only one of which need be stated—a cold climate for several months in the year. The subject of closer separation has, therefore, been discussed, and its realisation hoped for by other means than by water. Prior to 1870 no ores were separated in Colorado except by water, and none of the works were carried on with satisfaction. During the summer of this year Mr. Krom brought one of his "dry ore separators" to Central City, for the purpose of experimenting with the Gilpin County sulphurets. The ore operated upon was the mill ore, first-class, selected out by hand; it was passed through Cornish rollers, but not sized as it should be in regular work. The results will be given in a succeeding communication.

DESCRIPTION OF KROM'S DRY ORE SEPARATOR

Instead of entering into a minute description of the apparatus used for dry concentration, which would not be readily comprehended without diagrams, the following synthetical statement is presented:—

1.—The machine consists of a portable frame of iron 5 ft. in length, 2 ft. in width and 3 ft. 10 in. high, weighing 1000 lbs.

2.—The operating mechanism within consists of—(*a*) an adjustable feed hopper; (*b*) an ore bed of wire-gauze tubing, permeable to puffs of air readily; (*c*) a roller beneath the ore bed for the support of the column of concentrated stuff gravitating downwards, and for the discharge of the same at a regulated speed; (*d*) a bellows or intermitting blast apparatus for delivering puffs of air through the ore bed so as to lift, agitate and float upward, intermittingly, the lightest parts of the ore, and to cause such matter to overflow from the surface of the ore itself, whilst the heavier metallic particles are permitted to gravitate downwards to the roller provided for their discharge as regulated.

3.—As a whole this machine is a compact combination of adjustable and automatic mechanism by means of which a given quantity of ore is lifted in air intermittingly, and so agitated by air as to effect the separation of the heavier from the lighter parts, by allowing the particles to move in obedience to their own weight or gravity, the latter overflowing from the surface, and the former sinking between the gauze tubing to the discharging roller.

The inventor uses the following language:—

"There are but a few principles on which all the plans for mechanical separation of ores are based; that of a free fall of the ore in a steady moving current of water or of air, centrifugal force or analogous throwing of the crushed material freely through air at rest, and intermittent impulses of jets of air or water. The first two are alike in their effect, and produce deposits together of equally falling grains. But this is not the separation required. Owing to the various shapes of the ore particles, practical and useful separation cannot be effected by these means.

As a general approximation, crushed ore particles differing greatly in shape, may be proportioned in three main classes, as follows:—

1.—Roundish grains, about	.....	50 per cent.
2.—Oblong "	"	25 per cent.
3.—Flat-shaped "	"	25 per cent.

The manner in which the flat, oblong, and highly angular grains happen to be presented to the action of the air, as when thrown from a centrifugal machine, influence the length of time of their falling. A flat-shaped grain of gangue rock, for instance, if its edge cuts the air, will be thrown and deposited with the heavy mineral; and the flat-shaped heavy mineral will be deposited with the light gangue, if its flat or broadest side should be presented to the resisting action of the air. The intermittent action of air or water involves a further and superior principle; and, as between these two, air is far preferable. Jets of compressed air thrown up through the air or bed of material, in rapid succession, have the effect to lift the lighter portion to the top, and allow the heavier to sink to the bottom, and almost irrespectively of the varying sizes and shapes of the ore particles or grains.

The more sharply or distinctly the jets of air are given the more perfect and well-defined will be the separation, and the greater may be the varying sizes of the grains. And the more rapidly in succession are the jets of air repeated, the greater will be the amount of work done in a given time. The Krom machine gives both sharpness of effect and rapidity of succession in the air jets. It is essential in concentrating, by means of either air or water, that time should be allowed between the successive upward thrusts or lifts, for the whole, in each case, to come to rest, or very nearly so, before the next lift is applied. But the freedom with which ore particles fall in air, and the very slight extent to which each lift of the material is carried, allow the lifts to be repeated in these machines 400 or 500 times per minute, while water would admit only about 100 per minute. In short, by the use of air, properly applied, greater perfection of concentration is obtained, and the amount done is greatly increased, the amount of material treated depending almost solely on the number of lifts which can be applied within a given time."

Central City, May 8. B.

THE SLATE DISTRICTS OF NORTH WALES—No. I.

SIR,—Amongst the many and various mineral productions of this country roofing slates are certainly not the least important, as a substantial roof is allowed to be one of the necessaries of life in this climate, and hitherto no such efficient material for that purpose as slate has been discovered, so far as cheapness, lightness, and durability are concerned. But it is not only as a roofing material that slate is valuable; of every kind of stone for flagging slate is preminently the smoothest and most enduring, and in the formation of tanks and cisterns, either for water or other liquids, where cleanliness and incorruptibility are chief desiderata, few, if any, materials equal to it exist. A brief description of the slate-producing districts, and a few remarks upon the slate trade will, therefore, not be inappropriate in these columns, especially as there are peculiarities connected with both well worthy of attention.

One of the first things to be observed is the small quantity of slate made use of, either in the form of roofing slates or slabs, compared with the amount which must be required for the purposes to which they can be applied, not only in this country, but in the several foreign countries which are in a great measure dependent upon us for them: 500,000 tons per annum will, probably, include the whole production from the various parts of the kingdom for the supply of Great Britain and Ireland, a large part of the continent of Europe, and for export to America. Why the use of such a valuable material should be so restricted is difficult to understand, but we believe it depends chiefly upon two causes, the discredit that has fallen upon this class of material, from the quantity of rubbish which at times has been foisted on the public under the name of slate, and the great cost of the best slate to the consumer from the limited production of it, and the enormous carriage. The principal reasons for this small production are the very limited areas within which true slate is to be found, the situation in which these are placed; and, lastly, that which constitutes the greatest peculiarity, that the small spots where it is found are almost entirely the property of three or four large and wealthy proprietors, in whose hands the production is all but a monopoly. Within the last few years the price of slate has nearly doubled, and, unlike that of any other article, has not been reduced by periods of depression in the trade. A slack demand has simply been met by decreased production, a tacit understanding existing amongst the manufacturers not to undersell one another. Stocks have been allowed to accumulate, and men been placed on short time rather than submit to a reduction of price, a sacrifice which is cheerfully submitted to, even by the workmen themselves, in consequence of the large profits and high wages enjoyed during prosperous seasons resulting from this monopoly. True slate is a metamorphic rock belonging only to the oldest geological systems—the Cambrian and Lower Silurian. In the West of Scotland, and in the mountains of Cumberland and Westmoreland, there are deposits of strong coarse slate, but these, though locally useful, are of little value for commercial purposes, on account of the coarseness and roughness of their cleavage. On the north coast of Cornwall and Devon are slate deposits of good quality, the produce of which, especially that from the Delabole Quarries, is justly esteemed. But the chief source of slate in every manufactured form for supplying the markets of the world has been, is, and must continue to be, that mountainous corner of North Wales immediately to the north, west, and south of Snowdon, where from the rugged nature of the country the transit of such a heavy material is both difficult and expensive. But even in this small space the deposits are quite exceptional, and are found with proper facilities for working them but in four small patches. The most northerly of these, about three miles long by something less than a mile in width, is that near Bethesda, in Nant Francon, containing the celebrated Penrhyn Quarry. Some distance to the south of this is an outcrop of the same veins in the Llanberis Valley, where are situated the quarries of Mr. Assheton Smith, almost as extensive and profitable as their northern neighbour. Further to the south-west, in Nant Nantlle, lies the third; and the fourth, still more towards the south, at the head of the beautiful valley of Festiniog, which contains, amongst others, the famous quarry of the late Lord Palmerston, for its size and the number of men employed, perhaps, the most profitable slate quarry in the world. Except in these four places, each of which we will give a more detailed description of presently, no regular deposit of marketable slate is to be found. Innumerable quarries have been opened at an enormous expense throughout the whole of the district, extending from Bangor and Conway on the north to the line of Plynlimmon on the south; and although here and there small quantities of fissile rock of a slaty nature exist, from which a few coarse slates and slabs can be made, no profitable quarry has yet been opened outside of the four patches named, with the exception, perhaps, of one belonging to Earl Vane, in the neighbourhood of Machynlleth, which produces a considerable quantity of slate of a fair quality, but far inferior to its more northern rivals. Nor is it easy at first sight to understand this peculiar limitation of slate deposits. The ores of tin are equally limited as to the extent of country within which they are found, but then tin-bearing lodes exist in large numbers, and over nearly every portion of that district, whilst it is useless to look for slate, as too many persons have found out to their cost, except in the places mentioned. The whole of the part of North Wales we have alluded to consists of sedimentary rocks of the Cambrian and Lower Silurian formation, interspersed with eruptive rocks, and patches large and small of volcanic larva, and is broken up into mountains and valleys of every variety of size and shape, but all bearing that similarity of general character which marks their common origin. The volcanic rocks may be broadly divided into horn-blendic greenstones and felspathic lavas, sometimes perfectly distinct from one another, but often so closely combined, and running from one into the other, that it is impossible to separate them either in theory or in fact. The sedimentary rocks vary also, by almost imperceptible gradations, from the coarsest grits and conglomerates to the finest homogeneous slate. They are all more or less fissile, with definite planes of cleavage, in most instances distinct from those of deposition, but vary as much in their aptitude for splitting as in the materials of which they are composed.

It is not my intention here to enter into a long disquisition on the causes of the phenomenon named "cleavage," but without a few remarks upon it it will be impossible to give any description of the formation of true slate, and make clear the reasons why so comparatively small a quantity of that material is found in a district apparently similar in its general characteristics and conditions. The subject, however, is too long to enter upon at present, so I will reserve it for a future letter. G.

CAN THE CORNISH TIN STAMPS BE IMPROVED?

SIR,—I am much obliged to you for the insertion of my letters in your valuable Journal; they bring me enquiries daily, and requests from parties for me to go to their mines, or to meet them at some appointed place, to show my models. I have had to go West again for the past week, and others are requesting me to call at mines in Devon and Cornwall, but I am compelled to go to London, and therefore, forced to delay seeing them. I shall be in town for the next three weeks when I shall be prepared to meet tin mine secretaries, managers, or their agents, and show them my models, when they will be able to judge for themselves as to their merits after seeing four or five working, and such as I think must convince any sane man that Cornishmen have hitherto been stamping on the dark side of the edge in every respect—that is, so far as stamping and washing tin goes.

I am convinced that a stamps on my principle can be erected for one-third the cost of the present drudge stamps, and do one-third more work. A stamps for the present day must be made—as Cornishmen should—to conform to the times and imitate railway speed. I fear it may be said it is a disgrace to them to class their stamps with that dead drudge of an animal, the donkey; but they should know the difficulty they encounter if they attempt an increase of speed. Then let them discard their drudge donkey stamps, and bring out one that imitates that useful, and far more lively, animal the horse, that can be driven to suit the present age.

I believe that a stamps driven faster, with a lot of more lively heads in the stamps bed or cover, and of less weight, will do a deal more work than the old donkey stamps do, as that is an odd, ugly thing, pent up in a corner, with only a maximum speed, that cannot be increased; all they can do is to get more power, and add more weight. It is precisely the old motto, "We do as our fathers did before us;" but I can accommodate them with speed any way, either with large single rows of heads working on each side of the axle in single, double, or treble rows, or with fair-sized heads run with belts, 150 lifts per minute. I can suit them either way, and to do a deal more work.

They have another telling evil in the old stamps—it is not lively enough. Tin is a ponderous ore, and slow-speed stamps give it time to settle between, and it is left under the heads until it is reduced to slime so fine that it is not to be caught with the crop tin, and it goes off in the stream; a portion is caught miles below, but a great deal goes into the sea. All letters addressed to me at 36, Hyde-street, New Cross, S.E., will find me. N. ENNOR.

N.B.—In my remarks on the cost of a stamps I refer to every portion except the heads and lifters; they cost much the same as in the old ones.

ON WHAT DOES METALLIC MINING DEPEND FOR ITS GENERAL SUCCESS?—No. IV.

SIR,—In continuing my remarks on this subject it will be proper to say that a slide, a cross-course, and elvan, or other dyke or intrusive rocks, frequently produce very marked results, sometimes favourable, and at other times the reverse, as it is seldom that an occurrence of this kind happens unaccompanied by an increase or a diminution of the value of the lodes, either intrinsically or prospectively. This shows that the circumstances on one side of a cross-course, or other intersecting vein, are more favourable than on the other; but why it is so we know not, and no one that I am aware of is able to enlighten us in regard to it; and, therefore, nothing remains to us but to be diligent in observation, referring to experience and reasoning therefrom, and that—pretenders notwithstanding—is the only science effectually applicable to this part of mining. It is not sufficiently remembered, perhaps, by those practically unacquainted with this intricate pursuit that only a very small part of it can be seen at a time.

The closest examination of the interior of a mine is proceeded with step by step, and every step in advance excludes from view its predecessor, and the range of vision by inserting oneself in a hole in the rock is circumscribed by impenetrable boundaries, and hence the connection between the past, present, and the future is a mental process. The descent from one level to another is very frequently made divergently from the lodes, and it is, therefore, impossible, to determine by the judgment alone, guided solely by the sense of seeing, whether or not the vein operated upon in the respective levels is strictly identical, especially considering that every object, as soon as seen by the advancing explorer, recedes into darkness, and their connection can only be maintained by the mental eye and faculty, and the difficulty is not unfrequently increased by a striking dissimilarity between prominent features at the two points; amongst which may be noticed the fact that the lower level is sometimes remarkably dry whilst the upper is exceedingly wet, a circumstance calculated to engender doubt as to whether any necessary or natural connection exists between the two points. In such cases the facts of observation can only be referred to the reason, and reason from such data can only arrive at probabilities. But these serve to excite an experimental investigation of the facts, which is proceeded with by dialling, and transferring the outline to paper, showing the plan of the whole, and thereby rendering it critically conspicuous to the view, as if transparent. And not only so, but an entrance, so to speak, is effected into the interior, from whence the whole may be surveyed under every conceivable aspect at will, open to the reason, with reference to experience, or any other test of knowledge, including the sciences. But it should never be forgotten that such a view is but an outline, and that the intermediate parts are unexplored, and require, to be of any practical value, assiduous watching, and all changes occurring during the prosecution of further development in the line of direction of the lodes be noticed, and carefully ascertained, both as to the quantity and direction of the divergence, and then be promptly transferred to the working plan of the mines, relatively in the order of their occurrence, for comparison, contemplation, and reference. This mean of information may be appositely said to be the cardinal light of this important part of mining; indeed, it is the only reliable light, *a priori*, all other lights being derived by direct experimentation, and shine only after the sources of their emanation are unveiled. But this shines into the darkness, and illuminates unpenetrated regions, and otherwise undiscovered truths, long before they can be experimentally explored and ascertained, and with sufficient practical clearness and exactitude to be relied upon. From hence it will not be difficult to perceive that to a very large extent the general success of mining depends on the unremitting vigilance and judgment of the agents, exercised with a wise discretion; which, of course, includes the adoption of every method and observance of every precaution to render moral assurances practically sure.

A knowledge of human nature is no less essential to the success of mining than is a competent knowledge of the physical condition and the mechanical and material appliances necessary to their development. There is no truer economy in any industry than that which is effected by an enlightened or judicious liberality, both as respects the mode of working and the employers engaged therein. Nothing commands so much respect from working men everywhere as unquestioned competency and sound business qualifications in the person or persons on whom devolves the responsibility of directing the operations in mines, especially when such qualifications are accompanied, as they generally are, by a true gentlemanly deportment. No one despises knowledge, nor the wisdom necessary to its proper application, even in an enemy; and few there are who do not deem ignorance despicable in a friend. I am fully convinced, after a somewhat lengthened and varied experience in mining, that economy, and its consequent successes, are promoted by nothing so certain and so reciprocating as from a consciousness pervading the mind of every subordinate that the responsible and directing head of the establishment is practically conversant with its every minutiæ and detail. And not only so, but with methods for demonstrating their correctness or otherwise.

On the other hand, the haunting consciousness of inferiority on those points in a manager, which cannot fail to make itself felt where existing, conduces to self-disparagement, and its consequent ungeniality of disposition, the manifestation of which unamiable quality, unprovoked by even ordinary causes, is eminently productive in a far too general sense of kindred—or rather retaliatory—dispositions. This is one of the positions in which ignorance cannot conceal itself, but where, by being placed in juxtaposition to the light, it becomes hideous even to its own subjects, and the more frequent the contact the more patent and pronounced becomes its proportions, and every subsequent effort to effect its concealment only serves to disclose another phase of its ungainly proportions. But it may be asked who is to blame if even designing ignorance, after having secured a somewhat elevated and comparatively lucrative position, should strive by all means to retain it? If ignorance is bliss, it must be so on the ground of its simplicity, and all unsophisticated earnestness which comes under that rule, if not faultless, cannot be said to be criminal. But may it not be questioned as to which class the ignorance we are considering belongs; and, further, whether is the greater, that which flaunts unreasonable pretensions, or that which endorses and provides for it experimentations at its own expense?

The interests of mining, though identical, are something more than the interests of an individual, or of class interests, and ought to be so regarded. It is to be regretted, however, that the principles of legitimate mining are so often sacrificed to gratify personal prejudice and to promote individual interests; and that the plainest dictates of common sense are so frequently disregarded in furtherance of party purposes. It would seem that because mining is too complicated and profound to be defined as a system, that it is equally, if not more, commonplace than agricultural pursuits. I am well aware, whilst I thus speak, of the essential value of chemical science to agriculture, and that it is extensively applied in that pursuit, but that embraces only a single branch of one science—analytical chemistry—thus, given the constituents of a soil to determine the kind of manure necessary to its invigoration, and a knowledge of the kind of seed for which it was adapted. But with mining the case is very different; its intricacies, complications, and obscurities render it difficult, even to the most experienced persons, in proportion to its many entanglements, and the darkness by which it is surrounded.

The untutored savage of the desert sees the same sun, moon, and stars which we see, but has not the remotest idea that they are anything more than they appear to his unassisted eye. He has not the faintest perception that thousands of the stars which on a clear night brood twinkling over him, during his nocturnal revellings in the dance and song, are stupendous worlds, vastly larger than the one he inhabits, and is equally unconscious of the graceful revolutions they perform in their orbits, as he is of the nations of this terrestrial orb. Just so it is with thousands of individuals as respects mining. They believe, hearing of lodes, shafts, and levels, and having seen a lode, shaft, and level, that the connection of these, in what manner soever performed, is the sum total of mining. And hence the conceits which so many take refuge in, and with so much enthusiasm express—at least, in this part of the country—just as if they were maxims evolved from irrefragible logic, instead of being arrant blunders—viz., "One man can see as far into the ground as another," "One man can dig into the ground as well as another," &c. These and such like crudities of ignorance are current and respected, and by men who can scarcely speak of mining in other connections without prefixing to it the term "scientific." Inconsistency seems very inadequately to express the freaks of some men when disporting themselves in the airy regions of their own nothingness—cut loose from their moorings, and without ballast.

Another important part of mining knowledge is that of chemical mineralogy; more especially is this requisite in foreign fields, where it is sometimes impossible to be accommodated with the services of others, and not always safe to rely upon when obtained. The complicated blending of ores, whereby one class certainly becomes the matrix of others, and conceals from the eye, even when assisted by the most powerful microscope, every feature which might otherwise indicate their presence, and therefore experimental chemical tests are necessary. I presume that mining, though not a science, embraces a greater number of the sciences than any other pursuit, so much so that it may be appropriately called a science of the sciences; and yet, strange as it may appear, that which exercises and embarrasses the most penetrating and experienced intellects is degraded to the level of the meanest capacity; and instead of training the mind to its compass as a standard, and to a due appreciation of its numerous involved ramifications, the system itself is reduced by being stripped of its every characteristic and distinguishing feature, in order that it may not be above the level and comprehension of every pretender who chooses to obtrude himself into the arena of mining. A hole in the ground with such, having some sort of mental reference to an object, is mining.

Is it to be wondered at, then, that in so many instances where glowing reports are furnished by men who never have had any practical experience of the nature of mining and the constitution of lodes, they should be found to be fallacious, or that the highest expectations and exhilarating enthusiasm of honest and hopeful adventurers should terminate in pungent and galling disappointment, or that mining itself, branded with the odium, though due only to ignorant pretenders, should sink into the slough of irredeemable disrepute, and become the synonym of a specious but fatal snare? When the gilding of the imagination is substituted for Nature's colours, and such colours taken to represent the substances of Nature, ought anyone to be surprised if they fade, or fail to be the true index of the things they are alleged to represent?

I am sometimes puzzled as to whether adventurers should be exonerated from all blame in the matter or not as such, as all other appointments are made by themselves, and if they err the fault is

their own, and no one else can be implicated, except they were advisers. But when it is affirmed on behalf of companies that all appointments were made from the best information in possession, one is scarcely disposed to indulge in censure. ROBT. KNAPP,
Ellsworth, Nye County, Nevada.

WHAT TO SELECT—WHAT TO AVOID—No. XXI.

SIR,—Since last directing attention to the condition and prospects of the metal market several important changes have taken place, each unmistakably indicating at least a permanency in the present remunerative value of the several descriptions of metals, if, indeed, a further advance is not established. Many months since the writer pointed out that copper, for years at ruinous prices, must advance in value, the stocks and supplies being totally inadequate to the growing consumption. Since that opinion was expressed the price of copper has improved no less than 6*s.* per unit. Although the value of this metal has thus responded to his anticipations, and although it has reached a price that the most sanguine could scarcely have anticipated, yet, looking at its present statistical position, the limited supplies, the comparatively exhausted condition of the Indian market (which has still to be supplied), there can be no doubt that copper will not only maintain its current financial position, but will command a considerably higher value.

These facts are especially satisfactory to the writer, because it confirms the correctness of his opinion, and the soundness of his advice, for in October last the writer observed that "investors and capitalists should without delay select well-conducted, low-priced shares in copper mines." A few instances will show the changes that have taken place since these remarks appeared:—

COPPER MINES.

	Price per share, October, 1871.	Price per share, May, 1872.	Aggregate advance.
Devon Great Consols ...	£100 0 0	£120 0 0	£20,480 0 0
East Basset ...	9 0 0	35 0 0	13,312 0 0
Kingston Down ...	3 5 0	5 5 0	12,000 0 0
South Wheal Crofty ...	28 0 0	100 0 0	77,464 0 0
West Basset ...	7 10 0	15 10 0	48,000 0 0
Wheal Basset ...	90 0 0	130 0 0	20,480 0 0
Wheal Seton ...	22 0 0	40 0 0	7,128 0 0
Total advance on seven mines ...			£198,864 0 0

Now as to tin. About the same period the writer penned the above remarks concerning the prospective condition and value of copper, he stated as to tin that its commercial value, although subject to slight fluctuations from speculative causes, would be maintained, its marketable *status* possessing a vitality equal with the material industries and commerce of the world, for the additional purposes to which both tin and copper are being almost daily applied create a constantly increasing consumption, augmenting proportionately with the development of trade and the progress of civilisation.

Subsequent results have sufficiently proved the accuracy of these anticipations to render recapitulation unnecessary; but a few instances may be quoted, showing the result upon the market value of some of our leading tin mines:—

TIN MINES.

	Price per share, October, 1871.	Price per share, May, 1872.	Aggregate advance.
Carn Brea ...	£152 10 0	£170 0 0	£ 18,000 0 0
Cook's Kitchen ...	35 0 0	52 10 0	42,875 0 0
Dolcoath ...	70 0 0	90 0 0	85,920 0 0
East Pool ...	14 0 0	18 0 0	25,600 0 0
New Rosewarne ...	1 10 0	9 0 0	42,500 0 0
Providence ...	25 0 0	35 0 0	11,200 0 0
Tincroft ...	52 0 0	72 0 0	120,000 0 0
Treleigh Wood ...	0 4 0	35 0 0	174,000 0 0
West Frances ...	21 5 0	27 0 0	11,686 0 0
Wh. Kitty (St. Agnes)	13 0 0	17 0 0	17,180 0 0
Wheal Margaret ...	17 0 0	27 0 0	8,960 0 0
Total advance on eleven mines ...			£557,921 0 0

Showing an aggregate advance on 18 mines within seven months of £756,785.

NORTH TRELEIGH WOOD.—When the writer last drew attention to this mine he pointed out that it is the only company working a property in this celebrated district incorporated under the provisions of the Limited Liability Act, that its shares are fully paid, that the whole of the purchase-money consists in paid-up shares, and that its prospects of success are spoken of by those best competent to judge as being in no way inferior to its neighbours—Treleigh Wood, Treleigh Wood United, Rose United, &c. Treleigh Wood shares, with 1*l.* paid, are selling at 35*l.*; Treleigh Wood United, with 1*l.* paid, at 12*l.*; Rose United, with 1*l.* paid, at 3*l.*; Peevor, with 10*s.* paid, at 2*l.*10*s.*; New Rosewarne, with 22*s.* paid, at 9*l.*; and North Rosewarne, with 2*l.* paid, at 9*l.*, whereas North Treleigh Wood shares (limited), and fully paid (1*l.*), are selling at 2*l.* 10*s.* to 3*l.*, which certainly cannot be said to represent the intrinsic value of the mine. Upon previous occasions the writer has pointed out that the actual price of a share cannot always be accepted as a criterion of its real value, and North Treleigh Wood does certainly appear to be a case in point, for already at least six tin and copper lodes have been discovered, which, being intersected by two cross-courses, assures their productiveness upon development. It is confidently stated that returns will be made as soon as the machinery is in operation, and that permanently successful results will be realised. Among the several practical authorities who have recently inspected the mine, one who has had great experience states that "North Treleigh Wood, in the immediate neighbourhood of many largely productive and profitable copper and tin mines, and unexceptionable geological position, the stratification of the most favourable description, and possessing several very important mineral lodes, is one which no capitalist need fear embarking in, with the full expectation of an ample and speedy return for his outlay."

RICHMOND CONSOLIDATED.—The writer is glad to find that his anticipations in regard to this mine are being fully verified. Although the price has advanced to something like 4*l.* premium, there is every reason to believe that the shares will, from the merits of the mines alone command a yet much higher value.

CAMP FLOYD.—The writer drew attention to these shares when at par (10*l.* paid), and has now to congratulate those of his correspondents who effected purchases, seeing that there is an active market for the shares at 5*l.* premium, which is equal to 50 per cent. advance. It is said that the profits will enable the directors to declare dividends at the rate of 5 per cent. per month.

Pinner's Hall, Old Broad-street. FREDK. WM. MANSELL.

P.S.—Since writing the above a further advance of 5*l.* per ton in the price of copper has been officially announced.

INCIDENTS IN MINING—No. I.

SIR,—I purpose to send to you from time to time for insertion in the *Mining Journal* such notes on mining as may appear to me to be either useful, interesting, or amusing to your numerous readers. The Journal, so long held in deserved esteem for its utility in exposing abuses, as well as being a medium for the conveyance of useful knowledge to all connected with mines, railways, and science in general, is, in my opinion, the best organ in the country as the exponent of all practical ideas on those subjects.

You are aware, Sir, that in mining there have been great abuses; confidence has been abused, and money misapplied. I will, in the first place, give you an instance of misplaced confidence in a mine agent—a man at one time of moderate character, and having several mines under his management. At the time to which I am about to refer he was the manager of a tin mine which has been profitable to the shareholders. It has been alleged that in this mine he would range the price of shares to suit his own interest. Did he wish to buy, then his report would depreciate the mine, and he would purchase; did he want to sell, then his report would eulogise the mine as a first-rate property; the shares consequently rise, and he would sell. By this procedure, it is said that he netted a large sum of money. However, a climax came: other agents were called in to report for a forthcoming meeting of the company. Their reports represented the mine to be very rich; I think the lode was worth 100*l.* or more per fathom, while the manager said it was worth very little. The consequence was the manager's services were dispensed with at that meeting. Since that time the mine has given many if not regular dividends—justifying the independent agent's report.

At the eastward of this mine there is a farm containing about 80 acres, the minerals of which belong to the Duke of Cornwall; of this land the aforesaid manager took a mineral grant, thereupon he and his friend, the purser, looked out for some one to whom they might sell the grant for a good round sum. They did not wait long, for a purchaser soon presented himself, and what sum, think you, did he pay for the grant? 8000*l.* Mind, 6000*l.* for the license to mine within that tenement, which license cost the vendors perhaps 8*l.*; 3000*l.* for the manager, and 3000*l.* for the purser—a good bargain for them, but a bad one for the vendee and his partners. The said manager was appointed to manage the works in the sett so bargained for and transferred. About this time the owner of the farm (the surface) was desirous of leaving England again, and he said to the manager, "If you like you shall have my farm, I am tired of England." After some consultation a price was agreed on, the conveyance deed ordered, and a few days after the sum of about 1500*l.*, the consideration money, was paid over in hard cash. Now, in carrying out mining operations, every body knows that an account-house is a necessary appendage; well the manager, who is a far-seeing man, took care to build a house that would serve for a good farm house, or for a private residence, after the mine ceased to work. A smith and material house is also wanted in mines, these were also substantially built so as to serve as future stables, &c.; as to the mine, an engine was erected and worked a short time, when all operations ceased, and the machinery and materials were sold; so that the manager can now, I suppose, go in and take possession of his buildings. However, the report he gave of the first-mentioned mine made it convenient for him to sequester in another location.

How strange it appears to me that any man or any company should be so thoughtlessly extravagant as to put 6000*l.* in the purchase of an unexplored property, merely because a mile or so only distant a tolerably good mine existed. The manager purchased the freehold farm for one-half of the money paid for the license to search for the minerals beneath it.—*May* 20. AN OLD READER.

THE TERRAS MINE, AND ITS PROSPECTS.

SIR,—I have noticed that parties have for a long time been hard down upon the prospects of this mine. I was all but inclined to think it was south of the railway, and out of the tin district. I passed it only a few months since, when I noticed Blanco, a mine I surveyed some years since for Captain Dale. I was not aware that Terras was in that district; I never was more surprised than to find in my last round I was conveyed to Blanco, a known tin district, and that Terras joined it. I did not go there to survey the mine, but on the captain showing me the map of the sett I certainly was very much struck with it. I could not set it down as correct, as it showed four elvan courses, running about north and south, and one crossing them about north-west and south-east; then, they have a north and south cross lode, and on the map they have many east and west lodes, one of which, I think, is called Edward's lode, running south-east, a caunter to all the others. I went over the sett and into the level to see where they were raising the tinstuff. I noticed that all these elvans and lodes carry tin, and from what I could see of them they make tin at the intersecting points or junctions of the lodes with each other, and with the elvans when they meet. I do not think them all well-defined lodes as to regularity. They appear to grow *tin* in elvans and lodes about junctions, and I thought it a place well worth a trial. I was not there to report, neither have I done so.

Since my return I have seen Capt. Rogers's report in the *Mining Journal*, and after reading it I do not hesitate to say that I thought he had gone too far; his report looks too much like a thing written by a man bent on mischief. I cannot come to the conclusion that he wrote it as a conscientious report; if so, I should not set him down as a judge. In the first place, Capt. Rogers should and ought to be aware that at this age of the world the most illiterate miner knows that it is at places where elvans and cross lodes meet, or where lodes cross each other, or lodes passing from one strata to another, that he has to look at as his guide to find ore. Then, I have to ask him where he will go and find finer looking elvans that are there alive with tin, and are in a tin district, and have a mass of junctions of elvans and lodes, of almost every bearing, and within a fair distance of each other, with speedy ground? Then, I say Capt. Rogers, after seeing all these things (as he must when examining the mine), should have harrowed up his practical knowledge, and asked himself whether this mine has not many deserving points to call his attention to. I would direct him to the stratification and the elvans. Are they not saturated for 20 ft. of the elvans in the very country joined with tin? The elvans and the country around contain tin about where they cross each other. Then, I may ask him how this tin gets there? I will not leave this an open question, I will give Captain Rogers my views of it, and say that tin is produced below from some interior source, and has passed up in atomic gases, aided by electricity, and accumulated at these points to a something it has an affinity for.

Then, I would suppose Capt. Rogers, as a thinking man (he knowing that all the lodes and elvans contain tin), would have asked himself the following questions:—When they come down in settled ground what will be the result; will the tin be concentrated in the lode and elvan, or will it become extinct? I should have thought far more of Capt. Rogers' report had he shown up the good points in the mine, and then advised them to push down to try three or four of these good points at once, as a good venture with the present rise in the price of tin. They should not charge this cost to the working of the surface elvans with 6, 8, or 10 lbs. of tin to the ton. These points should be worked distinct. Then I may notice that many old tin mine agents tell me they can make 6 lbs. of tin per ton pay in speedy ground, and some that are working mines near Bodmin say they are paying dividends from it. I know others who are now erecting stamps on the strength of such reports. I further think that Capt. Rogers overstepped his bounds in saying that the ancients raised tin on the back of these lodes, but not enough to pay, as he cannot know what the ancients did. I believe they worked very few mines which did not pay. As they knew nothing of the tricks of "brokers," "bulls," or "bears" they had only themselves to trust to. In conclusion, I have only one other remark to make, and that is I think him wrong in harrowing up Dolcoath, Tincroft, or Cook's Kitchen, by saying they were throwing away 8 or 10 lbs. of tin per ton. They are men that every practical man must consider know their own business. If they throw away tin, what has that to do with the Terras report? If he thought they threw away their tin, it would have been far more manly to have turned round and told them so in an open way. I should not have noticed Capt. Rogers' report if I thought it a fair, manly one. I leave it for the reader to peruse, and pass for what he thinks it worth. N. ENNOR.

London, May 29.

P.S.—Since writing the foregoing letter I have had sent me a ground plan of the mine. If they have half the lodes and elvans shown there, I know no mine in the country that has half the intersections they have. There is a great quantity of old workings shown on the map, which I know is correct, as I have seen them; but I have not Capt. Rogers' knowledge to bear me out in saying whether they were worked to a profit or not. I may notice South Terras is a short distance from Blanco and Terras. I looked through the mine, and I found a water-wheel upon it, working 12 heads, busy at working on stuff that is very much contaminated with mundic. All the mine is only a pit, about 30 ft. deep, and about 30 ft. over at the bottom, and 40 or 50 ft. at the bottom. I saw a man bring up a good stone of tin from the pit, and I saw good looking elvan a few fathoms off. It is a most extraordinary place, and a good speculation.—N. E.

TERRAS TIN MINE—CAPT. ROGERS'S SPECIAL REPORT.

SIR,—The object for which this Special Report has been published is too transparent to deceive even the most unsuspecting. It professes to be prepared under instruction from a shareholder in Terras Mine, and for the ostensible purpose of being advised whether he ought to part with his interest or not, and concludes as follows—"I cannot but advise you to part with your interest." So in order to enable him "to part with his interest" the report is published in your Journal at the earliest possible moment: on May 14 he writes his report, and it appears in your Journal on May 18. So that the readers of your Journal, whom they must presume to be gifted with no ordinary amount of credulity, are gravely asked to believe that a shareholder, advised by Mr. Rogers, in whom he has confidence, to dispose of his interest, adopts as his best course of succeeding the extraordinary proceeding of proclaiming to the world that he is advised to sell because the shares are worthless, and because the working of the mine is attended with great loss.

What an admirable way to take to sell his shares at a high price. According to the proverb, the seller of fish does not usually cry "stinking fish," neither is it usual for a seller of mining shares to advertise them as worthless; and no doubt, though there are great fools in the world, a fool of the calibre of Mr. Rogers's employer is rarely met with. Speaking seriously, until Mr. Rogers announces the name of his employer, and the number of shares he holds in the mine, then, and not till then, will I believe that the report was prepared in the employment of anyone having a real interest in the mine.

With regard to the report itself, Mr. Rogers may be entitled to state his opinions, such as they are, but it appears to me to bear internal evidence of a want of fairness throughout, and a fixed determination to represent matters in the worst possible light. But let us test the report otherwise.

1.—He (Mr. Rogers) begins by stating that the sett is very extensive, and traversed by several lodes and elvans, "some of which have been wrought on by the old men at shallow depths; but not, I think, with any profitable results." Now, will this eminent mining captain tell us upon what grounds he has formed the opinion that the old workings "were not attended with any profitable results?" My information is that the old men's workings are of such ancient date that there is no record of the results—in fact, I am told that they have not been worked since the days of the Phœnicians, or Ancient Britons. Probably he has not seen them; for the whole time he was at the mine above and below was only, I am told, 2½ hours. But I state as a fact that the surface operations are of great extent all over the sett from east to west, and also on a lode from south to north, cutting right across some of the east and west lodes; that I have seen some fine specimens of tin ores lying near these operations, and so productive must these workings have been that the farmers and men with small capital in the neighbourhood brought up a north adit from the river for about half a mile to Terras, and were stopped before they got to the old workings, having no money to carry it further. I have seen this adit and these old workings, which have tended very greatly to strengthen my confidence in Terras Mine, but until the levels are pushed forward under the old workings the real value of the lodes will not be proved. The utmost depth attained is 30 fms., and yet Mr. Rogers condemns the mine, though he admits seeing rich tin worth 30*l.* per fathom, and though it is well known that mines become richer as depth is attained, even to 200 fms. Mr. Rogers unintentionally pays Terras the greatest possible compliment by comparing its produce with Dolcoath and the richest mines in Britain, and worked at a depth of upwards of 200 fathoms. So that instead of disparaging the mine he pays it the highest compliment.

2.—Mr. Rogers evidently gives the most unfavourable account he possibly can of the lodes. There is a horse come in in the bottom, nothing unusual, and the elvans are poor. Yet these same elvans, so very poor, have yielded 10 tons 3 cwts. of tin in two months, with only 48 heads of stamps. He recommends these stamps should not be increased, but why should he advise this, when he recommends his client to "part with his interest?"

3.—Then he tells us in his report that there is a loss of 250*l.* a month upon the mine. How dreadful! A young mine only being opened up, sinking shafts, driving cross-cuts, supplying machinery of all kinds, cause a loss, absolutely a loss, of 250*l.* a month! What a frightful state of things for the poor shareholders! My wonder and regret is that the loss is not much greater—in fact, it is nearer 300*l.* per month; and I would have been better pleased to hear that it was four times 250*l.*, as it would have proved that much dead work was being done. Such a loss, if it can be called loss, is nothing on a young mine being developed. There is Penstruthal, brought out with a capital of 100,000*l.* to be lost—*i.e.*, to be expended upon profitable works, and yet Terras is condemned for losing, or profitably expending, 250*l.* a month, or 3000*l.* in a year. What twaddle!

But it may be as well to remind the shareholders that even this paltry loss is no loss to them. Parties for a certain capital have undertaken to open up the mine to the 40 fm. level, supply the mine with ample machinery, drive levels, and fit up 200 heads of stamps, or equivalents, and till this is done the shareholders are entitled to the profits on all ores sold, and these profits are about 250*l.* a month at present, and will much increase.

Does Mr. Rogers mean to report that there is a loss on the getting and dressing of the ore of 250*l.* a month, there really being that gain, or is it upon the whole expenditure? I can only say that I have never seen any mining captain before make such a very poor performance, whatever the object may have been.

ONE THOUSAND SHARES.

P.S.—Since writing the above I have seen a letter from Mr. Hamilton, of London, saying that he obtained an order from Mr. Waddington to inspect the mine, but when he did so he was not aware the inspection was for a "bearing" purpose. That he was afterwards told that Mr. Waddington had "beared" 150 shares. These parties can speak to the truth of this, and explain their share in the very questionable proceeding. Whether Mr. Hamilton knew it was for a purpose of "bearing" or not I have no wish to question, but I do know that Mr. Hamilton has been a large seller of Terras shares, and has had great difficulty in delivering them; and even a London broker last week wrote to me that he had bought from him a small lot of shares two months ago, and had to threaten to buy in against him, because he would not get them. The effect of this letter of Mr. Rogers's has been to send down the shares about 20*s.*, but it will eventually send up the shares double that amount, for the more it is examined the better it appears.

TERRAS TIN.

SIR,—In reply to the remarks of Capt. Rickard on my report of this mine, I beg the favour of a few lines in the Journal of Saturday next. I repudiate with contempt the assertion that I was employed to give a bad report—no intimation whatever was given when I received the telegram to inspect the mine whether the party employing me was a "bull" or "bear," neither would such have any influence upon my opinion. I found no place in the mine worth 40*l.* per fathom as reported, or any appearance of ever having been so only three or four days before I was there, nor could I see any place then in operation worth as many shillings per fathom. Capt. Rickard told me the monthly cost was 700*l.*, and that the returns of tin in the last two months had been ten tons two or three hundredweights, which would leave a loss of about 250*l.* per month. But seeing the party are not very particular as to facts or figures, it would be more satisfactory if the dates of sales were given, as I very much question if the quantity of tin was raised in the time stated. But since the contractor holds about half the shares, it is evident, so long as the uninitiated get a dividend they do not look into the way it is made. Since the dividend has been paid the shares have advanced from about 32*s.* 6*d.* to 3*l.* It may, therefore, suit the purpose of the contractor to debit himself with 1000*l.* and pay a dividend if his shares advance 10,000*l.* Out of the many inspectors who have seen this mine I have not heard of one whose report would serve the purpose of confuting mine; in fact, it is but the truth, however disagreeable it may be to any party connected with the mine. Capt. Gregory, of Drake Walls, valued the elvan at 3 lbs. to 6 lbs. I am informed several other gentlemen found the same results, so that my assay was given on the most favourable basis, notwithstanding which they are losing 250*l.* per month. Capt. Rickard said if all other cost than raising tin were stopped they could pay their way—just fancy, if all other cost was stopped they could pay their way; yet here is a mine paid a dividend. So evident it is to any impartial and experienced miner that the system as practised at Terras Tin Mine deserves the severest reprobation.

As Capt. Rickard makes or allows others to make remarks about Agar, of which he knows nothing but from the sales of tin and copper ore, the committee might long ago have paid dividends had they been bent on deceiving the public by the system as practised at Terras. Time will show who is right. Capt. Rickard says I was not on the mine more than 2½ hours; I ask him or anybody else is not that long enough to look at nothing. I would conclude by suggesting that the accounts of the mine should be plainly laid before the shareholders, clearly stating what amount of cost debitable against the mine, and what against the contractor, that in the future there may be no lawsuits against the directors or officials for inducing people to buy shares in a property that never ought to have paid a penny up to this moment.—*Pool, Camborne, Cornwall, May* 30. EDMUND ROGERS.

EAST LLANGYNOG LEAD MINING COMPANY.

SIR,—I have looked in vain for the past two weeks for a reply to Mr. J. P. Endean's letter, which appeared in the *Mining Journal* of May 11; none having appeared, will you oblige me by inserting the following?

Mr. Endean "regrets much he was not present at the commencement of the proceedings." He was in Manchester long before the hour appointed to open the meeting, and half an hour before the time was directed to the place, a distance of two minutes walk. Mr. Endean's regret for being late ought to have been expressed at the meeting, and not through the Journal. He says he was in time to move what he calls an amendment (but which was really a distinct resolution)—that that paragraph of the report giving a vote of thanks to Mr. Taylor be expunged, and that the meeting should be adjourned for 14 days *for tangible reasons, advantageous to the company, to be brought on the tapis.* The curious clause in italics was not in his "amendment." Now, Mr. Endean had then been seven days in possession of a copy of the directors' report, and there is no paragraph therein tendering a vote of thanks to Mr. Taylor—he is not even mentioned. The reasons he assigned for wishing to put the shareholders to the expense and trouble of another meeting were in substance—1st. Mr. Taylor had offended him; 2nd. He had refused his solicitor a (third) copy of the register of shareholders; 3rd. He had not had time (only seven days) to communicate with his clients. He said he was a London sharebroker. At this revelation the provincials present ought to have been overawed; but they did not even blink. When the shareholders had heard Mr. Taylor's reply they would have no more of Mr. Endean's harangues—the cloven foot had appeared—and the gentleman whom he called his solicitor was requested, by the meeting rising *en masse*, to leave the room. Mr. Endean says he only published extracts from the agent's report, and that he could not get the information he (a London broker) required from the board. Everybody knows that extracts may be made to express anything one likes. No doubt Mr. Taylor offended Mr. Endean by supplying to a gentleman in London (whom Mr. Endean called one of his agents) a number of East Llangynog shares to sell on his own account.

May I ask through the medium of the Journal if Mr. Endean has boastingly said he would open ten or a dozen offices in London, from which he would issue as many Circulars, in as many different names, advocating the same stock, and thus be independent of the Stock Exchange? If he has opened half that number, no wonder at the circular nuisance. Mr. R. denies emphatically that he ever told Mr. Endean the company would pay a dividend in January last.

Mr. Taylor has long since paid to the vendor and others about 12,500*l.* for his interest in the mine, and in the event of sundry contingencies he will have to pay him 5000*l.* more. But what did Mr. Endean pay for his interest (about 10,500*l.* worth of shares at par) to the vendor? Only 300*l.*! and that has realised him (the "middle man") over 20,000*l.*, yet he is not satisfied. He could not do anything with the mine himself, so he introduced it to Mr. R., and got about 9000*l.* worth of shares for nothing. It appears that he has cleared this large sum at a risk of 300*l.*, while Mr. Taylor's risk was more than 40 times that much, besides the above contingency. Why the balance-sheet was not sent to the shareholders seven days before the ordinary meeting was explained to the satisfaction of the shareholders present. Mr. Endean was there, and he knows, or ought to know, that it is the custom of many first-class companies to discuss the balance-sheet at the ordinary meeting, and send a copy to each shareholder seven days after. Mr. Endean asks "Is it true that Mr. Taylor in the formation of the company provided for himself a salary of 500*l.* a year." The Articles of Association were drawn up by Mr. R., and he put himself in for 500*l.* a year as managing director, together with a percentage on the profits. Is it true that Mr. Endean expected Mr. R. to put him in as managing director? When Mr. Taylor took up the company he modified the articles drawn up under Mr. R.'s instructions, and cut down the working expenses to less than one-half the amount Mr. R. had placed them.

Mr. Endean says that in December next Mr. Taylor will be entitled to 1000*l.* for two years' salary; this is not true, Mr. Taylor's salary is 300*l.* a-year until a dividend is paid, and 500*l.* a-year afterwards. If the directors had declared a small dividend at the general meeting it would have been more than 600*l.* in Mr. Taylor's pocket in the shape of dividends alone, and an advance of 200*l.* a-year in salary. He objected to a dividend because it meant a call as well, and though a call would not affect him it would the company, and he declined to have an advance of salary, except in a legitimate way. Would Mr. Endean for the good and honour of the company have foregone the pocketing 1000*l.*? Let those who know him answer.

Mr. Endean has confidence in the mine (which he could not float), but not in the management. A short time ago he extolled the management that he might get a high price for his shares. Now that he has sold 19-20th of his interest it suits him to run it down, I suppose that he may get the shares at a discount.

Though Mr. Pascoe has not been an underground manager before, he is every way fitted for the post; he is intelligent, discreet, thoroughly honest, and sober. Moreover he gets through a great amount of work. If not himself a scientific man he follows the instructions of those who know how to direct him. Mr. Endean complains that his clients have had to wait a month for certificates after he had sent transfers to the officers of the company; this he knows to be a deliberate untruth. Only in one instance was there a long delay while another impression of certificates was being printed off. It is a fact, however, that 20 per cent. of his transfers are informal, and have to be returned to him for correction. Once at least the transfers could not be registered because he had not paid his calls, and I believe sometimes the secretary had to wait for transfer fees, and several times Mr. Endean kept transfers at his office from one to three months, and then sent them down in a batch, meanwhile he wrote to his clients that he could not get the certificates from the company's office; was this done to prejudice the shareholders against the management? With the above exception the secretary has never had to wait a day for directors' signatures to certificates, and Mr. Endean has never had to wait (excepting while transfer book were closed) more than a few days for certificates for properly executed transfers. Mr. Endean insinuates that the secretary shows Mr. Taylor his

transfers, and that then Mr. Taylor sends his Circulars to his clients, offering East Llangynog shares at less than his prices; this is certainly untrue. Mr. Endean advertised East Llangynog shares in the Manchester papers at 2*l.* 10*s.*, when he was selling them through his Circular at 3*l.*, and Mr. Taylor then offered them at the same price, but if he did sell them at a lower price than Mr. Endean so much the better for the shareholders. It is quite true Mr. Taylor has an office in London as well as in Manchester, but they are both in his own name, and the Circular, whether issued in London or Manchester, is known to be from the same source. It will be time enough to find fault with Mr. Taylor's dealing in the shares of the company when he is proved to have abused the privilege, as no doubt some sharebrokers who have aspired to the office of managing directors may have done, but so long as by his energy and skill he saves the company more than his salary; it is evidently the interest of the management to keep him in office. Of one thing I am certain, it is not for the emolument that he retains his situation, but on account of the large interest he has in the success of the mine, as well as the benefit of his clients and the shareholders generally.

I am surprised Mr. Burn (late agent at the mine) should have so much to say. Let him tell the public why he was dismissed, and let him say how many hours per week he spent at the mine. The 40 tons of ore sold during his time fetched 20 per cent. less than we now obtain. Why? That 40 tons ought to have been 70, and the 20 tons he says he left at the mouth of the levels and about the floors proved to be less than 6 tons. The property was coming to grief under his management. He never put in a cross-cut till ordered by Mr. Taylor to do so; that cross-cut was the beginning of our success. I firmly believe that if we had retained Mr. Burn as the resident agent, allowed him to have his own way, and followed his advice, the company would ere this have been in Liquidation.

It is not my intention to continue the correspondence. Had I not heard that Mr. Endean was sending copies of his letter to our shareholders I probably should not have troubled you to insert this reply. JOHN MEGINN.

Levenshulme, Manchester, May 28.

EAST LLANGYNOG MINE.

SIR,—I should not have troubled you with this, in reply to the tissue of falsehoods published in the Journal of May 11 by Mr Endean, but from the fact that his epistle may meet the eye of some who do not know the man. He was present at the shareholders' meeting, and occupied a great portion of the time in an attack upon myself, with what result may be seen by not a single hand being held up in his favour. It would appear as though he felt a little disgusted with himself, as he crept out of the meeting almost unobserved; but whether he was or not, it was quite evident that the meeting was disgusted with him. Mr. Endean's statement as to me obtaining a large interest from the vendor as a middle man is altogether untrue, as I have not yet received one shilling either in cash or shares from him but what I purchased.

I am in a position to prove that I have paid over 12,000*l.* for shares in this company, purchased from the vendor and others; whereas Mr. Endean obtained from the vendor 11,250*l.* worth of the company's shares for 300*l.*, which he has sold out at high premiums, with the exception of but a very few shares; and is, perhaps, anxious now to obtain a number more at low prices by depreciating the management, which he greatly extolled in his Circular, by way of puffing off his shares. Happily the mine speaks for itself, and does not require puff. His great annoyance with me seems to be that I would not associate myself with him, but chose to work with brokers of respectability, some of whom he had the audacity to call his agents. It would be cheering to those parties who know something of the career of this gentleman if he would inform them, through the Journal, where he obtained his mining knowledge. It would also be well for him, before he again attempts to enlighten the public as to the power of machinery, and the value of lodes, to get a little more perfect knowledge of mining. J. TAYLOR.

EAST LLANGYNOG MINE.

SIR,—I have been rather surprised at the very glaring misrepresentations put forth by Capt. E. J. Burn, in the Journals of May 11 and 25, as to the discovery of the lodes and the opening out of this property, claiming for himself the credit of having made the discoveries of ore from which the large quantities are now being taken, a statement which every man on the mine will be prepared to contradict, seeing that is altogether untrue. When I first visited the mine Captain Burn informed me that there was about 70 tons of ore broken, ready for dressing in the various piles; but facts proved that there was not 40 tons broken on the whole mine. I am in possession of a letter from him, dated December, 1870, stating that there was 70 tons ready for dressing; and another letter, dated January, 1871, stating that he should have 50 tons ready for market by the end of February, neither of which statements proved true. Had Capt. Burn's skill and attention to the business of the company and development of the mine been such as he seems anxious to make the public believe they were, he might have retained his position at the mine until now; but I regret to say that, after repeated warnings, I had to dismiss him for neglect of duty.

Capt. Pascoe has devoted very great attention to the development of the property, and is still doing so; and as to the erection of the machinery, has planned and arranged it himself, without the aid of an engineer, Mr. Thomas, to whom Captain Burn refers, having simply been over to take the dimensions of the various castings required, and has not planned or superintended the erection of any of the machinery. The incline, which Capt. Burn claims to himself the credit of having laid down, had all to be taken up and removed. I should not have deemed Mr. Burn's letters worth of notice at all but in the interest of Capt. Pascoe, who is a thoroughly practical miner, and most honourable man. J. TAYLOR.

Manchester, May 27.

EAST LLANGYNOG MINE.

SIR,—For the last few weeks several letters have appeared in the Journal making serious charges against the management of this company and the manager at the mine. As these have a tendency to depreciate the value of the shares, I think it only fair that we should hear the other side of the question, as I have no doubt these charges can be refuted. If, as Mr. Burn insinuates, we have a captain at the head who is not competent for his post, by all means let the matter be enquired into, and if so the sooner a change is made the better for the shareholders.

I quite agree with your correspondent at Chippenham that we should have official reports, and as your valuable Journal is open to such periodically, surely it is the duty of the secretary to let us know the prospects of the mine from time to time. The directors, I think, are bound to notice the charges made against them, otherwise many will let judgment go by default. A LANCASHIRE SHAREHOLDER.

LEAD MINING IN SHROPSHIRE.

SIR,—Although very adverse to noticing anonymous correspondence, I feel it incumbent upon me to make some comment upon the letter signed "J. W.," which appeared in the Supplement to last week's Journal. I presume that "J. W." will not attempt to dispute that the Bog Mine is upwards of 230 fms. deep from surface, nor can he deny the truth of my remark that the shaft is only unwatered to a little below the 100 fm. level (106 fms.), for this is verified by the agent's report of May 22, in which they state that "the water is in fork 6 fms. below the 100 fm. level." I did not for a moment imagine there was any person acquainted with the Shropshire district who was not aware that the Boat level was about 65 fms. from surface; but how your correspondent, taking the mine to be 230 fms. deep, and the shaft to be unwatered 106 fms., can make out that "there is only about 42 fms. from the present water to the bottom of the mine," I am at a loss to understand, I make it 59 fms. It may not be uninteresting to your correspondent to learn that in the agent's report, presented to the first general or statutory meeting of the company, held in October, 1871, it was not only stated that the water was in fork 6 ft. below the 80 fm. level, but that the shaft was clear from the 80 to the 100, so that it has occupied nearly eight months in forking or unwatering the shaft less than 26 fms., it would, therefore, at this rate occupy more than eighteen months to unwater the mine. At the meeting in question the Chairman announced the financial position of the company to be good, there being a balance of 4000*l.* in hand.

The expenditure for the last eight months cannot have been less than 2000*l.* over and above the returns from sales of ore, and I think it is quite manifest that more capital will be required to unwater the mine than the small amount now at the company's bankers. It becomes a simple rule-of-three sum—viz., if 26 fms. cost 2000*l.*, what will 59 fms. cost (the depth still to unwater)? And where is the money to come from unless calls are made upon the shareholders in some form or other? It would be very instructive and desirable for the shareholders to ascertain the actual cost and the length of time occupied in unwatering the mine from the 69 fm. level to the present depth (106 fms.) The mine was from the first unwatered by the Pennerley engine to a depth of 69 fms. below the Boat level. It appears that one-third of the term (21 years) granted by the lease will have expired before the bottom of the shaft is reached. Good judges who know the district well are of opinion that a new shaft ought to have been sunk in a more favourable position for working than the present one, which would have saved the company a great deal of time and money. I have to thank "J. W." for the opportunity he has afforded me of justifying the statements in my circular upon this mine, and I have only to add that I shall fealessly continue to advise my clients of the true position of the various mines in this district.

Shrewsbury, May 30. E. CAVENDISH TAHOURDIN.

WHEAL PEEVOR.

SIR,—In last week's *Mining Journal* we noticed some remarks by an anonymous correspondent of a very personal character respecting this mine and its management. He commences his letter by saying that he "has failed by private communication with the officials of the mine in producing the desired result." This is somewhat indefinite, but may, perhaps, be intended to be explained in the following sentences, where he speaks of a want of information respecting the mine. Now, we have to say in reply to this charge that every shareholder who has applied for information respecting the mine has had the fullest information afforded him by the officials; and the reason for the writer's concealment of his name is evident from the fact of his having nothing better to commence his letter with than a deliberate falsehood. He says he was persuaded to become a shareholder "on the faith that it was Treleigh Wood lode now being worked on." Had he placed himself in communication with the officials of the mine they would have told him that it was the Wheal Peevor great tin lode they were working, and not the Treleigh Wood lode. The parties he says he fell in with, and who expressed "various opinions" on this matter, must have been men who (if such men ever existed) were deplorably ignorant of the mines of the district, and whose opinions were utterly worthless. The interesting dialogue wherein these worthies air their views is pretty much of the same character; and, if it shows nothing else, shows clearly enough that the Captain T. referred to thinks it of no consequence to the shareholders in a mine whether tin is 50*l.* per ton or 90*l.* Perhaps the shareholders in Dolcoath, or any other rich tin mine, would take a different view of the subject.

The same misty individual then asks, "Who would have shares in a mine where the purser and engineer are wholesale dealers in mine materials?" and who, he adds, "are privileged, if they were so disposed, to supply their own mines at their own prices." Now, no company that we have ever been acquainted with would allow such practices for a moment; and, as we have no wish to become swindlers, such insinuations fall harmless to the ground. It is quite true that during the late depression in mining we did purchase at low rates a large amount of mining plant, and are not ashamed to say that we participated in the recent rise in prices of such property, and that our regret is that we did not invest more extensively. At the same time, we have been careful to place it beyond the power of anyone to sustain any charge against us such as your correspondent would appear to wish to do. If "Philanthropist" is desirous of knowing who would hold shares in mines with which we are officially connected, we need go no further than the Wheal Peevor Mining Company, the shares in which are principally held by the most influential mining gentlemen in the county. We are getting on rapidly with our surface erections, and hope to have the whim engine-house up in about a fortnight. As soon as we are able to draw with this engine we shall be in a position to send to surface thousands of tons of tinstuff from above the adit level, which is the best criterion of the worth of the mine. We court inspection, as we believe the more our mine is seen the more all legitimate shareholders will be pleased with the property. We shall sample on Friday next about 200 tons of tinstuff.—*Wheal Peevor, Redruth, May 28.* THE OFFICIALS REFERRED TO.

WHEAL DANIEL, AND ITS MANAGEMENT.

SIR,—For a long time I have been dissatisfied with the system pursued at Wheal Daniel, and must now ask for permission to unburden my grievances through the Journal. I am constantly hearing the enquiry—"Why don't Daniels go better?" and, with your permission, I will try to give an answer. Firstly, because the mine is, as I consider, being worked in an un-minerlike manner—in fact, as long as the engine is working it appears to be all that is required. At the present moment they are not sinking the sump-shaft, nor driving the bottom level west of the shaft, nor have they done anything on the great south lode. How can anyone expect a mine to be properly laid open in this fashion? Secondly, there is too much share-dealing going on, and that is the curse of many mines; as when men have a monetary interest in a concern they generally work it for the market, and the market only—indeed, the laying open the mine is sometimes left out of the question altogether. Thirdly, is it not a curious thing that a pare of tributers should break a parcel of tinstuff, which, according to their sample, ought to bring at least 15*l.* per ton, and yet it is said to have been sold for almost a nominal sum? This matter certainly requires explanation; and I have no doubt all irregularities can, to a certain extent, be remedied. I trust they will be, and that we may see if Wheal Daniel cannot turn out under good and efficient management to be one of the best of our Cornish "bals."

Allow me to say, in conclusion, that I do not cast the slightest imputation on Capt. Pryor, the resident agent. I believe him to be a good man, and in every respect worthy of his place, but when a man's hands are tied as well as his tongue—as it is said his are—what can we expect?—*Redruth, May 25.* B. D.

TIN HILL MINE.

SIR,—In answer to "M. T.," I may state that I also am a shareholder, and have been from the commencement. We have waited long for the turning point, and I for one have more than once almost given way to despair. But I believe we are now close upon a very great success. In fact, if I am not grievously misled, Tin Hill will be one of the successful mines of the current year. On what ought to be the first authority I am given to understand that as soon as the stamps are fairly at work, and probably before this is in print they will be started, we may look for a return of 3 or 4 tons of rich tin per month. And as the monthly cost will not be more than about 100*l.*, the result, even with the present stamping power, should be something very good. In every respect, save in stamping power, the capabilities of the mines are equal or even superior to the Terras Mine, about which so much is written in the Journal. I quite expect that before the end of the year we shall be realising profits at the rate of 1*l.* per share per annum.

CONSTANT READER.

WEST JEWELL.

SIR,—The actual position of this mine at the present moment would appear to be better than the reader can form any idea of from the reports, although these, I admit, are mose encouraging. Being anxious to ascertain a few particulars, I wrote to Capt. Michell, who kindly replied as follows:—"We have made the engine-shaft in good working order 6 fathoms below the 42, and are at present making very fair progress in reaching the 57."—"We have sold since the meeting 1380*l.* worth of tinstone, at a profit of 67*l.*"

Why then, I ask, are not these facts published? Surely it would be interesting both to the shareholders and the public to know that 1380*l.* worth of tinstone had been sold since the meeting at nearly half profit to the company, proving, more than anything else can prove, that the mine is increasing in value in depth. What is the cause of this reticence as to the actual facts? AN ENQUIRER.

PINTO MINING COMPANY.

SIR,—In the Supplement to last week's Journal a correspondent writes under the above heading, and signs himself "Expectans." If he had read my letters on this company and its promotion and management, published in the Supplements to the Journal of Nov. 18 and Dec. 7, and other editions about this time, he would not now be expecting much from this concern.

A SHAREHOLDER IN AMERICAN MINES.

PINTO MINING COMPANY.

SIR,—I have always found great readiness on the part of the Pinto Mining Company to afford information to their shareholders, and in reply to the letter of "Expectans," which appeared in last week's Journal, I beg to give the results of an enquiry made at the company's offices a few days ago. I found that up to the latest advices the roads were still impassable, as it appeared by the *White Pine Daily News* of May 4 that, although the weather was then fine, it would be some days before ore could be conveyed along the roads, so that upon this head there was nothing to report; and I think "Expectans" was in error when he said other mines had recovered from the bad weather, and were paying dividends, if he meant to convey that they had earned those dividends since the fine weather set in. I found also that the superintendent had been requested some time ago to furnish the fullest information upon all the points mentioned by your correspondent, and that the directors were disappointed at not having yet received this; but it will, doubtless, be to hand for the general meeting, which I believe will shortly be held.

Thinking this information may be acceptable to shareholders who are unable to enquire for themselves, I venture to ask the favour of your inserting this in the Journal.—*London, May 30.* C. M. R.

TAQUARIL MINE.

SIR,—I have read with much interest the letter signed "Copper," in last week's Journal, in reference to the above unfortunate mine. I sincerely hope for all concerned that the vendors can be made to refund some of the purchase money received for what has proved up to the present time a hopeless property. It seems incredible that so large a sum of money should have been expended before a manager who was supposed to be acting for the good of the company could determine the value of the undertaking to warrant such an outlay. I have regretted ever since the last meeting that those of us who voted for investigating the property and suspending the then manager lost our point, and were out-voted. Now that many thousands have since been spent we are apparently as far off success as ever. The telegrams that inflated the shares to such a price were certainly most unwarranted, and appear to have been forwarded without reasonable grounds for the statements they contained. I consider that the affairs of the company want investigating to see where the fault really lies. VERITAS.

[For remainder of Original Correspondence see to-day's Journal.]

LLYWERNOG.—Owing to an irregularity of the Post-office authorities in sending the Wales letter-bag via Oswestry, instead of by Shrewsbury, the last week's report of this mine was too late for insertion. It is now amongst our usual mining intelligence, and will be read with pleasure by those interested, as the improvement we referred to on the 18th instant is steadily going on in the main lode, below and west of the point of junction of the lodes. Six weeks ago, a special report by Captain Davis was published, which gave the 72 west as yielding 12 cwts. of lead ore per fathom (money value, say, 8*l.*) As the level opened west the value increased, and was a fortnight ago reported as worth 20*l.* per fathom. Now it is worth 2 tons of lead ore (say, 26*l.*), and, it is said, with every prospect of furrther improvement. There is much local interest felt in the development of these lodes in depth, which may be explained by the fact before noticed in this journal, "that the Ordnance Map, with the lodes laid down in gold lines by Sir Henry de la Beche, shows more lodes as traversing this sett than any mine in Cardiganshire, except Cwmystwith." Furthermore, some of these lodes can be traced by old and new workings as extending into the adjoining county; and, although many owners of mines in the intermediate district lay claim to possessing the lode of the celebrated Van Mine, the map, which tells its own unvarying tale, will, if examined with care, prove that one of the lodes so shown on Llywernog is in direct line with Van—the Van sett being described by the Ordnance authorities in the Welsh language. It is not assumed because this or any other mine may be proved to possess the same lode that it should be equally rich as at Van, or, in fact, that the lode in any given spot should be even productive of metal at any depth; but there is this feature to enhance the interest of the works at Llywernog—most of the gold lines so representing its lodes on the Ordnance Map have already been proved to be chiefly of strings or branches of one or two main lodes. That these branches converge and become consolidated in depth is now being proved; and, so far as this practical trial has gone, the main lode shows itself to be richer and richer as the levels are lengthened, and the workings away from the disturbance caused by the junction of such branches or feeders. It is, therefore, a most interesting trial, and we shall continue to watch the result.

WHEAL JEWELL (St. Hilary).—Wheal Jewell, situate in a district well known to be very rich in minerals, and close to the celebrated Wheal Prosper and other mines, which many years ago yielded immense profits, has been worked for some time by Messrs. Gundry Brothers, of London, and a few of their friends, with highly encouraging results. In the early part of the present week no less than 80 tons of good copper ore were sampled, and it is believed the returns will shortly be considerably increased. We understand that, with a view to fully develope the resources of this valuable mine, the promoters have divided it into 12,000 shares, which will doubtless soon fetch a high premium. And the fact that Wheal Jewell will be under the superintendence of Mr. Thomas Pryor, of Redruth, as purser is a guarantee of success to the undertaking.—*Redruth Times.*

CORNISH PUMPING ENGINES.—The number of pumping-engines reported for April is 20. They have consumed 2397 tons of coal, and lifted 18·5 million tons of water 10 fms. high. The average duty of the whole is, therefore, 52,100,000 lbs., lifted 1 ft. high, by the consumption of 112 lbs. of coal. The following engines have exceeded the average duty:—

Crenver and Wheal Abraham—Sturt's 90 in.		Millions	70·0
Ditto	ditto —Pelly's 80 in.		62·1
Ditto	ditto —Willyams's 70 in.		74·2
Dolcoath—85 in.			53·4
West Chiverton—New 80 in.			73·1
Wheal Seton—Tilly's 70 in.			58·5
Ditto —Tregonning's 70 in.			63·3

FIRE-DAMP.—A French inventor, M. TURQUAN, is reported to have designed a means of preventing explosions of fire-damp in mines, or at least to obviate loss of life therefrom, by the simple agency of an alarum that gives warning when the emission of carburetted hydrogen has rendered the air explosive. The apparatus consists of an ordinary alarum, actuated by a spring and clockwork, of which the balance-wheel is held in check by a lever, to which a cord of cotton, impregnated with saltpetre, is attached, enclosed in the wire gauze casing of a safety-lamp. The action is simple and obvious; when the mixture of gas and air has attained the explosive limit it inflames within the lamp, and consumes the cotton, releasing the lever and balance-wheel, and setting the alarum in operation. Thus the miners have timely warning to withdraw until the air is purified by ventilation.

Royal School of Mines, Jermyn Street.

[FROM NOTES BY OUR OWN REPORTER.]

LECTURE XXXIX.—Having given a faint outline of some of the principal features of the usual modes of pillar working you will (continued Mr. SMYTH) gain much insight into the matter by a study of Mr. Sopwith's models, up stairs, which are constructed on a scale which presents a whole epitome of the phenomena and facts connected with this kind of workings, although the scale is exaggerated as to depth in comparison with length.

There is another point connected with these pillar working to be noted, arising out of the fact that successive seams of coal within a few yards or fathoms of each other have to be won. Suppose that at the depth of 100 yards we have a seam, then at 150 yards another, then at 180 a third, and at 200 yards a fourth; it becomes a question which of those seams should be worked first. It has been held that it is best to go to the bottom first, and work away the deeper seam, first creating before the mischief produced; but with reference to pillar working, this is a most complicated question, inasmuch as it has been found that the working of one seam almost invariably affects the others, whether above or below it. Mr. George Elliot wrote a paper on this subject some years ago in the Transactions of the North of England Institute of Mining Engineers, containing some curious facts which occurred at Monkwearmouth, and proved that it was not a question to be settled at once. Amongst the results of his experiments were these:—Suppose the lower seam was worked first, it was found that when the pillars come to be got a movement is produced which effects considerable change in the seams above, making them easier worked, but so crushed as to give a larger amount of slack. In this case the Maudlin seam, 6 ft. thick, is 265 fms. from the surface, and the Hutton seam, 4 ft. thick, is 285 fms. The two seams are worked simultaneously, the pillars left being 30 yards by 40 yards thick, and the bords 5 yards in breadth, thus leaving seven-eighths in the shape of pillars. The pillars being removed over a largish area in the upper seam, and a considerable goaf being thus formed, the workmen found when they came to cut away the lower seam beneath this goaf the coal to be much harder, and more expensive to work, but it produced a larger proportion of whole coal. Another change produced by the alteration of the pressure above was that it would not stand to be undercut, but always broke off with a cracking sound. On the whole, it was considered that the advantage gained by the larger proportion of round coal compensated for the extra expense of working.

On the other hand, I have seen cases in which the effect produced has been exactly the reverse. Thus, at the Usworth Colliery the removal of the pillars above had a decidedly pernicious effect upon the seam below. The removal of the pillars, opening out large spaces, also always materially injures the roadways, which it may be necessary to keep up, and which then require constant repairs. When the ground is hard the strata above will hold fast, sometimes over a large area, but it must come down at last, and in such cases the fracture of a large rock roof of this kind almost always leads to serious results in the shape of explosions, from the gases being displaced by such great masses coming down altogether. In the lower seam it will be found when the upper one has been worked the roadways may keep good for some distance, and the wall stand well, but if there should be a part in which, from its yielding nature, a quantity of timber had been put in, it will be found that they will be constantly giving way, the roadways will become one mass of slush, and all this will be the single result of the strata above bending down, and forming a sort of basin, in which the water will settle, and then penetrate through to the levels and workings below. It is, therefore, a matter of calculation. If by getting more whole coal the value of the "get" is increased 1*s.* per ton in one seam, but in the other the inconveniences and charges produced involve an additional expenditure of 2*s.* per ton, the balance between the two may make all the difference between a paying and a non-paying concern. On the whole, however, it seems to be pretty generally held that when there is a considerable pressure it is better to remove the upper seam first, and to let the ground down, it being found practically that the ground will then come to a state of rest, which will admit of the second seam being worked advantageously. I have mentioned some disadvantage arising from this course; but, all things being considered, the balance is decidedly in favour of removing the upper seam first. The old system of working a large area is almost at an end, for various reasons; and, amongst others, because a long series of passages has to be kept more or less in order, so as to prevent any stoppage of the ventilating currents, and these open passages by exposing so much of the coal to the action of the atmosphere the pillars become deteriorated in quality. It is better to work a smaller area or panel, such as we spoke of in the last lecture, by which the pillars are got quickly after the bords are cleared, and before they have time to deteriorate. The change is important also as regards ventilation, as the currents of air are thereby reduced to moderate lengths, instead of being, as in the older system they frequently were, from 40 to 60 miles from the down to the upcast shaft.

Whether we take in hand one system or the other the workings will sometimes commence near the shaft and go outwards, or the drifts will be run out to the extremity, and then the coal will be got at the farthest point, working back towards the shaft. The choice is often the result not so much of peculiar circumstances affecting the ground as pecuniary circumstances affecting the owners; because in getting as they proceed outward a return for the capital employed is more rapidly obtained than by the other plan. Nevertheless, in some cases, and particularly in the Midland district, where the holdings are frequently no more than eight or ten acres, there are great advantages in driving out to the extremity and working back. In some leases it is usual to make provision for the levels and shafts to be used in bringing in the coal from adjacent properties, but if no provision of this sort is made a boundary wall, as it were, is to be left, which is usually a few yards short of the actual boundary.

There are a great many modifications of post and stall work, but it will only be necessary to mention a few. In some of the districts of England the facilities for laying out post and stall work are inferior to what they were in the North of England. Thus when the floor and roof are weak that circumstance gives rise to the employment of a different sort of arrangement altogether, although the principle remains the same. At the Dukinfield Colliery (where it is remembered there was the second deepest pit in England, that of Rosebridge, near Wigan, being now the deepest) there is a notable example of great pressure at a high temperature, which is usually the case when they went down to such great depths; and there, when I visited it last summer, I was shown what great precautions were needed to secure a sufficiently strong shaft pillar, and the integrity of the main levels; the line of levels for the latter being driven from 60 to 80 yards apart. From the main levels roadways to bring down the coal from the working places, in pairs, called jig-brows, are driven 140 yards asunder, the term "brow" being given to an up-hill or a down-hill road, and a "jig" is the apparatus by which the wagons are brought up or let down. From these jig-brows the actually working places will be driven out. Beginning by leaving pillars 10 yards wide, they drive a cross-cut, or "crut," for a short distance, perhaps 6 ft., while on the north the bords are from 4 yards to 6 yards wide. They then go 20 yards along the jig-brow, and then another piece is taken out, leaving pillars 10 yards wide, and from 30 to 40 yards in length. When this is taken out by the narrow workings they then proceed to take away the pillars. The arrangements for this are similar to those in the North of England, but they have to get over the ground quicker. They begin (say) at the pillar No. 1, working it away bit by bit, and putting in when necessary a pack-wall. Missing pillar No. 2, they attack No. 3. The alternate pillars being thus removed they then, returning from the boundary, take the remaining pillars and let down the roof. This is rather a hazardous operation, and, besides, the movement overhead having a tendency to force out the gas it is absolutely necessary not to allow open lights to be used. The same system is in vogue in Cheshire and North Staffordshire; where the seams being numerous and at a high angle, they are worked by driving out cross-cuts, which intersect the whole, and then by working away the pillars.

Another variation is supplied by the coal mines worked below the River Dee, at Mostyn, and elsewhere, where the drifts are so arranged as to facilitate the keeping up of the roof which is there necessary from the fact of a broad estuary being at the top. And it is well established that if the thickness of the ground over our workings be less than 50 or 60 fms., the removal of the whole of the pillars leads to a great commotion in the strata above; and railway engineers have consequently found it advisable to purchase the minerals on each side of the lines to a given distance. At a colliery in the neighbourhood of Workington the thinness of the pillars was carried to excess, and although the manager at the time was not without warnings no attention was paid them, and the sea from above came in so suddenly that thirty-six lives were lost, and the colliery totally destroyed. Other similar disasters might be mentioned in South Wales, arising from undue thinning of the pillars.

Another modification of the pillar system is that in which from the coal being very tender, and the roof bad, the openings are made unusually small, and the pillars comparative large, but inferior in dimensions to those I have already mentioned. There are old-fashioned mines in North Wales and Anglesey where the openings are 4 ft. and the pillars only 4 yards square. In North Wales, where the ground is wet, and liable to inundations, this system was found to lead to difficulties; and they, therefore, make the openings 5 yards, and the pillars the same size; but if the "thirlings," or crossings, are of the same size the areas at the crossing are too large, and the corners being unsupported are likely to break away, as in any case the corners of the pillars are so crushed that the greater part of these must be left. In some districts, however, where the coal is stronger than ordinary the pillars are split before they are abandoned.

Again, another notion (of which examples may be seen in Denbighshire) was that it would be found advantageous to drive out at a greater width. The levels, therefore, are 160 yards asunder, and between them the "wickets" are driven. Strong ribs of coal are left for the security of the roadways, and then, on the side on which it is is intended to get the coal narrow openings, called "wickets," are made, and then a stall is opened out from 12 to 14 yards in width, and between these pillars of 10 yards are left. It is obviously necessary to cut through the pillars from time to time, and to secure the roof of the stalls packing and a good deal of timber is requisite. This may be said to be an intermediate system between the wall and pillar working. This plan is, in fact, very similar to that practiced in the Yorkshire top-coal collieries, which have had the working of one of the most important seams in this kingdom—the Barnsley thick bed and the top hard coal of Derbyshire, which reaches in some places a thickness of 9 ft. In Yorkshire this is worked similarly to the system employed at Lundhill (of which a map hung up is the wall). The pits being sunk on an inclined plane—the inclination not being great—lines of levels are driven out—1, the water level; 2, the main level, used as the main current of air; 3, parallel to the last, which is called the back level; and 4, one from which the main workings are put by driving at right angles. The coal is then got by lines of bord-gates 90 yards apart, but varying with the direction of natural cleavage, of the coal. The bord-gates are put out in pairs, at right angles to the face of the cleat. These bord-gates are useful in drawing away the fire-damp from the coal, rendering it less liable to blowers. Formerly they worked with naked lights, but safety-lamps are now used. They preserve along the border of the wide working a passage before the roof breaks down, partly for the men to go to work, and partly for the air to circulate, and also to secure a line of retreat for serious catastrophes from about 1846 to the present time, and explosions have occurred which have swept off a couple of hundred men at a time. This has occurred in pillar working suspicions of its inferiority as to safety have been suggested. The goafs, no doubt, are places in which gas can accumulate, and from

dangerous magazines of one of the most terrible of explosive agencies, and if an accident happened in one the fire would be carried by a train of gas, as it were, from one goaf to the other, and a wide-spread explosion result. The consequence of one or two of the later accidents has been that alterations of the system are in progress, so as to bring it something nearer the long-wall methods, which throw all the wide workings into one, and render it possible to isolate the goafs. It has been suggested, however, that openings into the goaf might be made, so as to allow it to be ventilated, but no such half measures will be satisfactory. It would be much better to change the mode of working altogether, and come to the system which will not leave any pillars at all, but remove the whole mass of the coal by a continuous process.

Meetings of Public Companies.

EMMA SILVER MINING COMPANY.

The adjourned special general meeting of shareholders was held at the City Terminus Hotel, on Thursday,

Mr. GEORGE ANDERSON, M P., in the chair.

Mr. W. H. TOOKE (the secretary) read the notice convening the meeting.

The CHAIRMAN said—Before proceeding to call upon Mr. Willyams to address the meeting, he had to announce to the shareholders a circumstance in respect to the Stock Exchange Committee. It would doubtless be remembered that at their meeting he had been asked by a shareholder if all the rules of the Stock Exchange had been complied with by the company with the view of obtaining a quotation. He had then replied in the affirmative, but he regretted to say the board had since learnt that he had been mistaken in his supposition. He desired to explain how the mistake had occurred. As the meeting was aware, they had made an application for a quotation, and had been refused. The committee in announcing the refusal had not, however, stated the reason which influenced their decision; but they had been told the reason through another channel. They had also been informed that the resolution come to by the committee required a further meeting to confirm it; they had, therefore, on submission to the chairman of the Stock Exchange Committee, and requested that, before confirming that resolution, he would allow the directors of the company to state their case. To that the chairman had replied that they had been misinformed as to the resolution requiring confirmation at a subsequent meeting, but that if the company chose to make a new application, the committee would be ready to reconsider the question, and further appointed Monday last to receive the directors' statement. The board, considering that the company had been very harshly and unjustly treated, had thought this invitation to make a new application indicated a desire on the part of the committee to reconsider their determination. They had attended the meeting on Monday, and the committee, having heard their statement, had informed them that they would deliberate on the desirability of calling a special meeting of their committee for the purpose of considering their new application. But, to the surprise of the directors, within half an hour of their interview with the committee, they were informed that they had decided not to reconsider their determination. The formal intimation of that decision did not state any reason whatever, but they had been informed privately that the reason assigned was undue haste on the part of the board in making the second application; although they had only acted after the chairman of the committee had deliberately invited another application. The directors were of opinion that they had been extremely harshly and unjustly dealt with in this matter. (Hear, hear.) And he would take the present opportunity of explaining the grounds of their opinion. The Stock Exchange Committee had two rules relative to the question at issue. The 127th dealt with applications for settlement, which they had already obtained, and the 128th dealt with applications for quotations. As he had mentioned, they had applied for a settlement, and had got it without any question being raised. They had been aware that they could not apply then for a quotation, because the company had not complied with the requirements of Rule 128, which enforced that the vendors should retain only one-third of the capital of the company. Their application for a quotation had been refused, however, not from having failed to comply with any of the requirements of the 128th rule, but because their prospectus had failed to comply with one point in Rule 127, which was a rule about settlements. The fact was this: the prospectus, in stating that a preference would be given to fully paid-up shares, had not stated how many of these fully paid-up shares, and how many scrip shares the company intended to issue. At the time of drawing up of the prospectus, the directors were entirely ignorant of the bearing of that rule. The brokers to the company, some of the most experienced men in the City, and the solicitors, also an eminent firm, were equally ignorant of the bearing of that rule; and, in fact, the requirements had so entirely become obsolete that the Stock Exchange Committee had deemed it necessary, fifteen days after their prospectus had appeared, to post up a notice on the Stock Exchange, calling attention to the existence of this rule. (Hear, hear.) He considered that if any objection was to be raised by the committee to their application, it should have been done when the company applied for a settlement, and not delayed till a further application for a quotation had been sent in. And he strongly maintained such a course of proceeding was most unfair; to punish this particular company on account of this unfortunate error on the part of the directors, which they would certainly have avoided had they been acquainted with the existence of this rule, and which, moreover, the Stock Exchange Committee proved by its subsequent notice to have become obsolete. They were of opinion that the committee should have applied that rule after the 24th of November, the date of the notice, but not have made use of its restrictions in the case of a company formed prior to its appearance. (Hear, hear.) It would be the opinion of every one, he felt sure, that it was a very hard way of dealing to make their notice retro-active. And further, the board knew that the committee had not been equally severe with other companies; in fact, they were absolutely acquainted with one case, a company in which he (the Chairman) was a director, in which the same violation of the rule had taken place, and in which a quotation had been given without question. They, therefore, thought that the Stock Exchange Committee, who were an arbitrary and irresponsible committee, had used their powers in the question at issue both unjustly and unfairly. The only other point to which he desired to call their attention was with reference to their property. The board were that day in receipt of a letter from the mine of a very satisfactory character. He gave the assays of the ore for the month as being very much higher than what they had been before. (Cheers.) There had been eight assays made, and the average value per ton had been 200 dols., whereas the previous assays had proved it to be worth only 100 dols. to 140 dols. This information he regarded as eminently satisfactory, as showing that the value of their ore was increasing. (Hear, hear.) There had already been published in the newspapers the last telegram received by the board with reference to the work effected during May. It was to the effect that there had been sent away by railway 500 tons of ore, there had been raised from the mines 660 tons of first-class ore, and 290 tons of second-class ore; the stock on the mines amounted to 550 tons of ore, and at the railway depot to 200 tons, about 800 tons of ore in all, ready to send away. He believed even this satisfactory production was not so large as it would undoubtedly become as soon as the roads were repaired. (Cheers.) The Chairman, in conclusion, begged to introduce Mr. B. Willyams, who would now give his experience gained during his recent visit to the mines.

Mr. BRYDGES WILLYAMS, on rising to address the meeting, was very heartily cheered. He said he must first apologize to the shareholders for having been prevented attending on the last occasion of their meeting. At the time their Chairman had been kind enough to explain the cause of his absence, and he now took the earliest opportunity of meeting his fellow-shareholders. He would at once proceed to endeavour to give them some account of his visit to the mines, and also the information he had been enabled to gather on the spot respecting the other objects of interest, such as smelting, roads, and others. And he considered that he should best consult the convenience of the meeting by simply giving a few facts, and then leaving it to any of the gentlemen present to ask him any questions in connection with the mines that may be of interest, and he promised to afford him the best information in his power. He had gone to the Emma Mine in company with Professor Silliman, who was so well known both in this country and America, and whose reputation stood so high in his profession that he deemed it would be out of place if he were to attempt to eulogise him. As he had mentioned before, it was in company with this gentleman that he had, after a very difficult and somewhat perilous journey, reached the mines; but it had not been until they had gone a considerable distance over roads covered with snow between 30 and 40 feet deep. They had at length succeeded in reaching the property, but on their arrival had not been able to do anything the first night. On the following morning, at daybreak, they had gone into the mines. In all probability the whole of the shareholders present were acquainted with the position of the mine, but in case some one did not know, he would briefly observe that it was situated on the side of a hill, and the entrance was by a tunnel called a trackway, and it was through this that the whole of the ore was brought out of the mine. There were eight floors above, and a similar number below this tunnel. They had agreed before exploring to take the eight floors above the tunnel the first day, and thus commenced the investigation of the mines. It might be interesting to the meeting to know the way in which they had taken the samples, afterwards assayed, from the mines. He had been extremely anxious to be particularly careful on this point, because, as they were aware, very hard and unfavourable things had been said about this mine, and the opinion had been and was continually circulated about their friends in America having tried in this and many other instances to hoodwink Englishmen. He would mention here that, on reaching the mines, he had found, in the captain of the mine, a brother Cornishman, very well known to him personally, and who possessed great experience in all mining matters. He had therefore immediately struck up a friendship with this gentleman—Captain Pascoe—and had taken him about the property during his explorations. They had proceeded to investigate the mines in the following manner:—Before entering the workings they (Capt. Pascoe and himself) provided themselves with a great many small bags, slips of paper, and a hammer. When in the level, after he had struck off a piece of ore in one place, he proceeded a little further and took another sample, and even in some cases collected three or four. These he then placed in one of the little bags, with a corresponding slip of paper, and handed them over to Captain Pascoe, who retained them intact until they were given into Professor Silliman's possession, under whose immediate superintendence they were assayed. The result of these experiments were already fully known to the proprietary. He might add that he believed the ores were correctly and truthfully assayed, and that the report with reference to the testing of the value of the ores was indisputably trustworthy. The next matter had been, and it was one on which they were particularly anxious to judge, the estimate of the quantity of ore then existing in the mines. They employed every appliance for the purpose, and, as far as it was possible, measured every level, so as to form an opinion to the best of their ability as to the quantity of ore yet untouched. His undoubted impression was, after the most careful estimate, that they had considerably understated the quantity of ore still unworked; and the meeting might easily imagine that they were extremely anxious not to give too sanguine a calculation as to the amount. (Hear, hear.) The next day they had proceeded in the very same way, only with the difference that they then explored the floors below the trackway. After having completed this work, and looked at the roads, and having given instruction as to the timbering the mine and other matters to Mr. Williams, the superintendent of the mine, and in whom they had implicit faith, they had started to investigate other matters in California. The instruction given previous to their departure had been with reference to certain operations they desired to be carried out in their absence. It gave him pleasure to state that on their return they found that their instructions had been fully carried out, and with very great success, as the shareholders had been informed by the second report forwarded to them on their return from America. It would be gratifying also to the proprietary to learn that their mine was worked in the most beautiful order and well timbered throughout. (Hear, hear.) He regretted the absence of a tramway, for the means of transit at present was about one of the few points not entirely satisfactory. He was of opinion that it would be a matter for further consideration whether the company should not make a track lower down. He thought it would not only be necessary, but beneficial to the company, as it would open out large masses of ore. He would here observe that, although he had gone out to America under the impression of being about to visit a great mine, he had not had the least idea that he should find a property of such magnitude, and full of such rich ore as he had seen at the Emma Mines. In addition, he might state as his opinion and as that of Professor Silliman, that during their absence the value of the mines had certainly doubled. (Loud cheers.) They had then turned their earnest attention to the subject of smelting, and had spent considerable time in visiting the various smelting works in the neighbourhood of the mines and of Salt Lake City. The result of their inquiries and observations had not been as satisfactory as he could have wished they might have been. The process of smelting was still in a very rough state in Utah; the difficulties in the way of its satisfactory accomplishment being very great, such as the very high price of fuel and labour. He believed, however, as the mines in that territory were opened out and developed, and the ore raised, that enterprising smelters would go out from this country, and he had no doubt when this was the case smelting would be brought to as great perfection as it was in this country and in Germany. For the present, they could not, consistently with the best interests of the company, advise them to embark in a smelting business, but rather deemed it would be more advisable to continue as they were doing at present, to ship their first-class ores to this country for treatment; and when at some future time the art of smelting was better known in Utah, and they would be able to smelt the ores on the spot, the benefit derived by the company would be somewhat considerable. In accordance with his advice, a parcel of the company's ores had been sent to the Winnamucka Smelting Works, and they were at present being treated there. The result of this experiment he had hoped to have heard before, but no report had yet reached the board, although they anticipated it would arrive within the next few days. The owner of these works was a Mr. Dagget, a very clever man in his profession, and who had stated in a letter that he had tried some of his own ores in these works with success, and that if a similar result attended their experiment, a saving would be effected of about 30 dols. per ton. With regard to the second-class ores, he remarked that at the present time the quantity was so great of this produce that it was very much in the way of working the mines; they had made inquiries and had had interviews with several gentlemen with regard to concentrating and smelting their second-class ores. (Hear, hear.) He was happy to say they believed that they should accomplish this most desirable object, and make a great success of their second-class ores. (Cheers.) He had visited the Pioneer Mills, in which the milling of ores was carried out; they belonged to Mr. Walker, of Salt Lake City, and treated ores precisely similar to those of the company. The silver returned from these operations amounted to 996 parts of 1·000, which, as the meeting was aware, was very nearly pure silver. If they could obtain the like results from the treatment of their ores, the benefit to the shareholders would be, of course, enormous. (Hear, hear.) He had given instructions, as he had before mentioned, to send twenty tons of their ore to these mills, and if the experiment proved successful, he should strongly recommend the erection of mills in the vicinity of the mine. The ores might be run down to these mills, when built, at a very little expense, and when treated the bullion could be carried down and sold either at San Francisco or New York. At any rate he thought they were in a fair way of discovering some plan of dealing with these ores, and he hoped so sincerely, because as he had said they were at present very much in the way of a thorough working of the mine. (Cheers.) Another important question, and to which their attention had been carefully turned was that of the state of the roads in the Canon. They had thought at one time that it would be possible to construct a wire tramway from the mine to Sandy Station, the nearest point of railway, but since its contemplation the scheme had been abandoned. He had gone to San Francisco and saw some gentlemen there who were in the habit of making these tramways, and after consulting with them it was found that the expenses would be so great, and the uncertainty, owing to the inclement weather, of being able to keep always the wire tramway posts in position, that they had been obliged to abandon the idea altogether. They had then thought of making a small metal tramway, but after going into the scheme fully they had not considered it advisable to recommend it to the proprietary. The only remaining alternative, and which offered, practically speaking, the greatest advantages, was that of placing the road up the Canon in thorough repair. This would cost between 35,000 dols. and 50,000 dols.; but, on the other hand, it would enable them to make a considerable saving in the cost of transit from the mines to Sandy Station, which, at the present time, was something enormous. The immense quantity of snow which, in its present condition, encumbered the road rendered it very difficult of passage, and when the sun began to melt the snow it was almost impassable for horses. The worst months for travelling were, therefore, April and May, during which time the snow was melting from the effects of the sun's heat. At the same time, if they could get the other mines in the neighbourhood—small, but valuable and progressive properties—to join with them in making that road serviceable, by putting it in thorough repair, it could be maintained in that condition at a very small cost. (Hear, hear.) They might even establish a toll, and so make the traffic directly pay for the maintenance of the road. If this were the case, he did not think the company would have, in the future, any difficulty in getting their ore from the mine regularly. The past winter, as they well knew, had been exceptional in its severity, and consequently the difficulties they had had to contend with might be regarded, to a certain extent, as exceptional also; but, in his mind, he considered that they ought to be in a position to carry their ores to the railway in all weathers, and during the whole of the year. (Hear, hear.) These preceding remarks concluded the few words he had desired to address to the meeting. They embodied, he believed, everything relating to the company's property of any interest to the proprietary; at the same time he desired to say, if there were any points on which he had not touched, and with which the meeting felt any interest, he should be very glad to give, to the best of his ability, whatever information was desired. The shareholders should, without reserve, be placed in possession of as full a knowledge of the property as he had acquired by his visit to the mines. (Cheers.)

A SHAREHOLDER desired to know the number of men employed on the mines, and of what nationality they were?

Mr. WILLYAMS said that there were 95 men engaged on the property, some of whom were English and some Germans; there were no Chinese, he regretted to say, in the neighbourhood at the present time. In answer to another question, it was stated that the distance from the mines to the mouth of the Canon was 12 miles, and that the railway station was four miles further on.

Capt. SEDDON asked if the system of a running or raised kind of railway were in use or contemplated by the board. The system he referred to was very cheap in construction, and was receiving the earnest attention of the military for the purpose of utilising it in mountainous districts.

Mr. WILLYAMS replied that he had not heard of such a mode of conveyance, but he perceived its practicability, and deemed it worthy of consideration. The question should have the attention of the board.

Mr. MOSSCROP desired information as to the tunnel which it was reported had been driven on the other side of their property, and had disclosed rich ore.

Mr. WILLYAMS regretted he could not fully inform the meeting with regard to this matter. It had only come to his knowledge at 11 o'clock on the eve of his departure for England, and his acquaintance with the question was therefore very imperfect. He had been hurriedly informed by Mr. Hussey that a tunnel driven by another company had struck ore in what they believed to be their patent. He had said in answer to the request of the superintendent for instructions, that if they attempted to carry away any ore from this new working, they were to move for an injunction against this rival claimant, who was the Illinois Tunnel Company. He could assure them that the two companies were on perfectly friendly footing, and he firmly believed that the Illinois Company had no intention whatever of working the ore so suddenly discovered; and, in fact, their superintendent, Mr. Williams, had very little doubt that he will be able to track out the vein, and in the event of his succeeding in his attempt, the new working will form quite another mine. The tunnel, he had no doubt, would be placed at the service of the company, if it were available to carry out the ores from the mines. (Hear, hear.) On hearing of this occurrence for the first time, he had offered to stay, but it was not deemed necessary, as the Illinois Company showed no intention of working.

In answer to a question relative to the future prospects of the mine,

Mr. WILLYAMS said that in his own private opinion the company possessed a very valuable property indeed in the Emma Mine: and he had no doubt whatever that it would be paying handsome dividends long after every one in the room was dead. They had made every possible calculation as to the quantity of ore yet in the mine, and, from these observations, he felt every confidence in saying he did not consider it possible for the mine to run short of produce for some considerable time. It was, of course, impossible to tell how long the ore would last, but he frankly confessed he had never seen such an immense mass of ore in his life as he had witnessed at the "Emma." As a matter for congratulation, he would add that the company had most excellent agents at the mines, and he felt sure that they would do everything in their power to develope the resources of the mine, and make it return as good dividends as possible. (Cheers.) When the side levels were intersected they would be better able to form an opinion of the future returns from the mines.

A SHAREHOLDER considered it desirable, bearing in mind the obstacles presented by bad weather to extensive operations, that the workings should be pushed forward with all vigour in the coming summer. (Hear, hear.)

Mr. WILLYAMS said the Chairman had given instructions to the agents on the property to work out as much ore as they could the moment the road was opened. He had no doubt that they would be able to work 100 tons per day with ease. If they succeeded in this, such increased working would enable them to double their dividends. (Cheers.) He believed the miners worked only six days in the week.

The CHAIRMAN, in answer to another question, said the telegram he had read did not specify the number of days during which the work mentioned had been accomplished. At the last meeting he had read a report of the operations for April, and that had been for work done up to the 27th of that month; he therefore presumed the telegram detailed the work effected up to the same day for the present month.

Mr. WILLYAMS said, in answer to a question as to the advisability of sending their ores to Norfolk instead of New York, that the suggestion was one worthy of attention. He had gone into the question at San Francisco, and had conversed with the manager of the Central Pacific Railway. This company was very anxious to carry their ores, and he thought that this line would do so at a cheaper rate than the Union Pacific line, which was at present the carrier for the company. The manager of the Central Pacific had proposed to make inquiries for him, and to get him a statement as to the price that company would charge for the carriage of their ores. He had been led to believe that if they could have a large quantity of ore, guaranteed to a certain extent, from this and other mines in the district, that the line would even feel disposed to establish a line of steamers for the purpose of affording an easy means of transit; and by this arrangement a saving to this company would be insured of about 30s. per ton, and the difference in time would be nearly three months.

A SHAREHOLDER desired to hear if Mr. Willyams knew whether the new vein that had been struck was a continuation of the Emma vein, because if that were the case, it would be only fair to conclude that the intervening space was also occupied with similarly rich ores.

Mr. WILLYAMS said he had understood from the manager that at any rate he had no doubt of being able to have ore all the way to where the Illinois Company had struck it, and that therefore they might fairly presume the intermediate ground was ore ground of equal richness to that in working. (Hear, hear.) If this were proved to be the case, the company would possess a second mine, and the discovery therefore was to be regarded as a most valuable one. Fortunately for them, the parties who had struck this new vein were not in any respect hostile to this company, and would without doubt give them the use of the tunnel already driven. Workings were at present being pushed forward at this point, with the view of proving the continuity of the vein.

A SHAREHOLDER asked if there were any truth in Mr. Hiram Johnston's assertions that this company had no right to follow out a vein when it went beyond their patent.

The CHAIRMAN said according to the United States' law the proprietors of any mine had a right to follow out a vein, even if it went beyond their patent, and that therefore this company was fully justified in all its operations. But if they had been trenching upon any one's ground the shareholders might rest assured that they would have heard of it, and have had an injunction out against them. He would only add that all of Mr. Johnston's statements with regard to their property could, if he cared to occupy the time of the meeting, be proved utterly false.

Mr. MOSSCROP, who prefaced his remarks by observing that he was a large shareholder in the company, and had been so since its establishment, said, before investing in the undertaking he had taken pains to satisfy himself as to the stability and prospects of the concern. He had in the first place addressed Gen. Schenck, who had been a director at the time he joined the company. In answer to his letter he received a reply to the effect that he had also subscribed and paid for a number of shares in the Emma Silver Mining Company, and he further assured him that he should most certainly not have done so, or have lent his name as director to the undertaking, unless he had felt fully convinced that the mines were indeed a valuable property, and that they would be faithfully managed. (Hear, hear.) On the receipt of a letter from Mr. Johnston unfavourable to the company, he had taken the opportunity of seeing him. With that purpose in view he had called at his office, and had at once been granted an interview. Mr. Johnston expressed himself quite ready to answer any question he might desire to put to him. He had therefore told him that, being a large shareholder in the Emma Company, he had naturally felt a little nervous on the receipt of his communication, and should feel obliged if he (Mr. Johnston) would give his reasons for believing the property below the value of its market price. He had then been introduced to Mr. Lyon, who was represented to be the man who had first developed the mines. Mr. Johnston had told him that he was an American lawyer, resident for the present in this country, for the purpose practically of looking after Mr. Lyon's interests with regard to the Emma Mine. On meeting their chairman since that interview had taken place, he had mentioned to him that he had seen Mr. Lyon. Mr. Anderson then informed him that this gentleman had been selling a number of their shares, but the stock of the company continuing firm, and the day of delivery being close at hand, he had gone to Mr. Park and asked him for some accommodation with shares. (Hear, hear, and laughter.) Mr. Park had very justly answered that he felt no sympathy with him whatever. He then frankly confessed to Mr. Park that he had received advices from America which frightened him, because he felt sure it would be impossible, after the announcement he alluded to had been made, to buy Emma shares at the price he had sold them. An American correspondent had informed him that, owing to the immense increase in the value of the property by its further development, he believed the shares would be at 100*l.* within a few month's time. Such an announcement as this fully accounted for the anxiety and terror of Mr. Johnston. Mr. H. Johnston, who was an American lawyer, represented the interests of Mr. Lyon, but why should he also take so great an interest in his welfare as to take the trouble of addressing him, and of stating verbally, as well as by word of mouth, the various objections and unfavourable circumstances connected with the Emma Mines. He had said he did it solely for the honour of his country. (Laughter.) Now, of course, it was scarcely necessary for him to say he had not placed much weight on this interpretation of his conduct, for he strongly believed him to be an upholder of Mr. Lyon, and at the same time he wished to observe that he considered Mr. Lyon should set about forwarding those he employs in some other way than by bearing the shares of mine. (Hear, hear.) Then with regard to the false impression that had got abroad through Mr. Johnston's agency respecting the report furnished by Professor Silliman in regard to the company's mines. He had taken great pains to ascertain that Professor Silliman stood so high in his profession as to take rank as the Sir Roderick Murchison, of America. Then again the other day he had received another pamphlet from Mr. H. Johnston, in which he denied that Professor Silliman had been employed by the purchasers solely. He had then written a letter to Messrs. Coates and Hankey, who were, he understood, the first firm to whom Mr. Park was introduced on his arrival in this country. He had received a letter dated the 24th inst. in reply, and in which this firm stated that the selection of Professor Silliman, as the best man to investigate and report on the property, had been entirely at their request. The meeting could therefore judge from this letter how far it was true that Professor Silliman had been employed by the vendors. At an interview he had had with Mr. Coates, that gentleman had expressed himself in very flattering terms of the ability and integrity of Professor Silliman.

Mr. LYON then addressed the meeting at great length, entering into minute details relative to an indefinite claim he had had against the company in the position of original owner. He owned, in answer to the demand of the meeting, that in his dealings with the company's shares he had sold short, and such he regretted to say was his present position. The opinion to be gathered from his observations generally were on the whole decidedly favourable to the company, for he expressed himself in the course of his remarks, although in rather ambiguous terms, as quite satisfied in regard to the value of the property, and of its prospect of future profitable returns.

Mr. FISHER said he held a considerable interest in the company, and had never parted with any of his shares "short." He had delivered the 300 shares alluded to to Mr. Lyon, by Mr. Park's order, because he had been given to understand at the time he would have been utterly ruined if he had not thus helped him. He could not express the astonishment he felt when he heard Mr. Lyon calmly confess that he was not a shareholder, and yet had presumed to detain the meeting with such a lengthy speech. Considerable confusion of dispute here ensued in respect to Mr Lyon being a shareholder or not. It was at length settled that that gentleman was a proprietor, and therefore entitled to be heard. Mr. Fisher then resumed, by asserting that Mr. Johnston's reputation in America never exceeded that of a fourth-class attorney, while Mr Lyon's occupation had been for the last few years bringing claims against any newly-discovered mine, and in instituting a suit against the company formed to work it. (Laughter.) With regard to his (Lyon's) transactions in the company's shares, he knew for a fact that at the time he was selling short he had gone to Mr. Park and had boldly asserted that he was doing no such thing. Yet, later on, it appeared too evident, and Lyon had admitted he had done so. Mr. Fisher then called on the meeting to judge of the truth and honesty of this man's intentions, whose endeavours, as he himself alleged, were directed to forwarding the interests of the shareholders, or, as he had asserted at another time, for the honour of his country. (Laughter, and hear, hear.) Although, no doubt, Americans ought to feel very highly flattered by such a compliment, he confessed that for himself he did not at all like it. Again, he desired to call the attention of the meeting to the fact that while Mr. Park was here in England, and to be met at every meeting of shareholders, Mr. Lyon had kept his lips closed, but no sooner had that gentleman gone, and was now distant 3000 miles or more, Mr. Lyon dared to bring forward all manner of false and disgraceful assertions. (Hear, hear.)

Some further discussion then ensued, not immediately bearing on the interest of the company, and various matters having been raised, they were satisfactorily disposed of by the Chairman.

A SHAREHOLDER then rose and said it was his pleasing duty to move a cordial vote of thanks to Mr. Brydges Willyams for having, in the interest of the shareholders generally, undertaken a visit to the company's mines, and for his painstaking endeavour while there to obtain accurate knowledge respecting their property, and for his coming before the meeting to-day with so distinct and full a statement of his investigations at the mine.

This, on being seconded by Mr. CAMP, was put to the meeting and unanimously carried.

Mr. B. WILLYAMS, after acknowledging the vote of thanks just so warmly accorded, said he had endeavoured, to the best of his ability, to investigate and forward the best interest of the company. He desired to repeat that although he had had a very high opinion of the mine before he started for America, and although he fully expected to see a really great mine, he had been agreeably surprised to find on reaching the Emma that his most sanguine estimations of the value and extent of their property had been more than realised. And he might add that he firmly believed the mine had doubled in value since his visit. (Cheers.) He had purchased shares to some extent at the formation of the company, and he intended to hold them. He was particularly desirous to avoid all mention of the value of their property in too sanguine a spirit, as his purpose in appearing before them on the present occasion was merely to furnish them with a few plain statements, yet he could not refrain from repeating, before sitting down, his confident opinion that the mine would be paying larger dividends than were being declared at the present time, long after all those present in the room were dead and gone.

A vote of thanks to the Chairman for his courteous and able conduct in the chair on the present occasion was then proposed and unanimously carried. The compliment having been acknowledged, the meeting terminated.

WHEAL SPARNON.—A general meeting was held on Monday (Mr. W. Jardine in the chair. The accounts showed a debit balance of 206*l.* 1s. 9d. It was resolved that a special meeting be called on June 17, for the purpose of considering of the disposal of the mine and property as a going concern to a new company, with a view of providing further necessary capital for the full development of the sett. The committee were re-elected, and thanked for past services.

PEDN-AN-DREA UNITED MINES.—A general meeting was held on Monday (Mr. W. Jardine in the chair). The accounts showed a credit balance of 1463*l.* 7s. 1d. Upon the proposition of Mr. Sharp, and seconded by Mr. J. Critchley Martin, the committee were re-elected, and thanked for past services.

WHEAL MARGARET.—At the meeting, on May 23, the accounts for the three months ending March showed a credit balance of 552*l.* 11s. 9d. The profit on the three months' working was 493*l.* 1s. 1d. A dividend of 10s. per share was declared, and 74*l.* 11s. 9d. was carried to credit of next account. Captains T. Trewecke and T. Michell reported upon the various points of operation. At Bramble shaft they have driven 22 fms. south at the 50 towards the south lode, and must be now near it. This is indicated not only by the distance driven, but by a change in the ground and an increase of water issuing from the end.

FOREIGN MINING AND METALLURGY.

In the Haute-Marne prices still display great firmness, and a recent advance has become general. Charcoal-made pig has attained a quotation of 6*l.* 8s. per ton in some rather exceptional contracts; rolled coke-made iron oscillates between 10*l.* 8s. and 10*l.* 16s. per ton. A scale of 16s. per ton between the various classes of merchants' iron is now everywhere accepted. The groups of Nancy and Longwy, which supply themselves with coke in the Nord and in Belgium, are now receiving deliveries with regularity. In the Longwy group there has even been too much coke, especially in the last few days of the month. It is complained that the recent scarcity was rather fictitious than real, and that it was made a good deal of in order to carry prices upwards. Working operations are being now actively carried on in the Nancy group at the forge of MM. Dupont and Dreyfus. These gentlemen have applied for a concession at Chavigny; they have also entered into competition with forgemasters of the Meurthe, having already obtained several concessions in the neighbourhood. Mention is made of the intended creation of a company for the establishment of a rolling-mill at Champigneulles. The imports of pig into France in the first three months of this year are returned at 41,000 tons; those of iron and plates were 16,000 tons in the same period. The Maubeuge Blast-Furnaces Company (Nord) will pay a dividend for 1871 on July 1.

A royal Belgian decree approves the statutes of the recently constituted Acoz Forges Company. The capital of the company has been fixed at 240,000*l.*; the Council of Administration is also authorised to issue obligations to the extent of 40,000*l.* It has been rumoured upon the Belgian iron markets that refining pig has been carried to 4*l.* 16s. per ton in some cases; it can scarcely be said, however, that this price has become general, 4*l.* 12s. per ton being the firmly established current figure. Merchants' iron has been in quite exceptional demand upon the Belgian markets, and prices are expected to be carried shortly to 10*l.* per ton, with a scale of 12s. per ton between classes. The price of plates has not varied; No. 2 stand generally at 12*l.* 16s. per ton, and boiler-plates at 13*l.* 12s. per ton; superior qualities bring only nominal rates. Rails remain at 10*l.* 8s. per ton. There is a general tendency to follow the example of English firms, and refuse all guarantee clauses in specifications. This tendency is, perhaps, to be regretted, as the scarcity of pig has some influence upon the quality of the iron delivered. An adjudication is about to be made by one of the Belgian companies of 106 tons of cast-steel rails, and 43 tons of iron rails. Machine coke-made iron is worth 10*l.* 16s. per ton, while 12*l.* 16s. per ton is paid for superior qualities. There is little change to note in the Belgian ironworks; contracts concluded in the last few months of 1871 still occupy them, at any rate, partially; but almost all deliveries experience delays from the want of raw materials and iron of special qualities. German adjudications, which inundated the markets a few months since, have now considerably slackened. The railway companies have repaired their way and plant, increased their supplies of rolling-stock, given partial satisfaction to public opinion, and absorbed their available resources. A meeting of Belgian forgemasters has been held at Namur, to consider the question of Danks' puddling furnace. A commission of eight members was appointed. This commission is to call in the aid of two engineers and a master puddler in order to thoroughly study the question, and it is also empowered to proceed to England, if necessary, and examine the apparatus upon the spot. The blast-furnaces of M. Louis Dupont, at Châtelineau, and of MM. Cambier and Co., at La Louvière, are about to be re-lighted,

The activity of the Belgian coal trade continues very great; labour makes default, and stocks are feeble. In the Charleroi basin coke stands at 1*l.* 1s. 8d. per ton. Some coal-workers wish to spread abroad a belief that the state of affairs is not advantageous to them, that they are executing old contracts concluded at rates much lower than those now current, and that the advance in the price of labour deprives them of all profits. Such assertions can scarcely, however, be seriously entertained. The proprietors of coke furnaces are expected to make immense profits this year. A line of railway from the Plateaux de Herve has been completed as far as Micheroux, and hopes are entertained that it will shortly be opened for traffic. The Petit-Try Company, which has a concession of about 800 acres, is about to be again brought into working, under the direction of M. Victor Gilleaux. It is much to be hoped that the production of coal will increase in Belgium, as coal is likely to be greatly wanted; it is doubtful, however, whether Belgian coal mining can keep pace with Belgian metallurgical industry.

A further advance is anticipated in the price of coal in France, so great is the activity prevailing, and so urgent are the wants existing. The coalowners are also stated to have concluded contracts in advance for their production for almost the whole of the remainder of the year, It is calculated that, notwithstanding the progress of coal mining in the Nord and Pas-de-Calais, the extraction of coal in France this year will not amount to 14,000,000 tons, while the consumption will not be less than 22,000,000 tons. Under these circumstances coal will, probably, remain extremely dear in France for some time to come.

Quotations for copper have experienced a further advance upon the French markets. Thus, at Paris Chilian in bars, delivered at Havre, has brought 108*l.* per ton; Chilian in ingots and tough English, delivered at Havre, have also brought 108*l.* per ton; and Corocoro minerals (pure standard), delivered at Havre, has realised 109*l.* per ton. At Marseilles, Spanish in plates has made 88*l.* per ton, and small refined ingots 98*l.* per ton. Upon the French tin markets quotations have further improved, but only to a small extent. Thus, at Paris Banca tin, delivered at Havre or Paris, has made 173*l.* 4s. per ton; Straits ditto, 168*l.* per ton; and English, delivered at Havre or Rouen, 166*l.* per ton. At Marseilles, Banca has been quoted at 170*l.*, and Straits at 166*l.* per ton. The article has been the subject of numerous fluctuations upon the German markets; nevertheless, prices have scarcely changed upon the whole. Tin has been firmer upon the Dutch markets; at Rotterdam Banca has brought 96 fls.; ditto, to be delivered at the autumn sale, 92 fls.; Billiton has been rather weak, at 94½ fls. A small advance has been noted in English lead upon the French markets, but lead from other sources has remained at about previous rates. In Germany lead has maintained a good tone. The French zinc markets have displayed an upward tendency. Silesian has been quoted at Paris at 24*l.* per ton.

FOREIGN MINES.

EMMA (Silver).—The directors on Monday received the following telegram: "230 tons of ore shipped from New York; 120 tons dispatched from the mine. Raised 180 tons first-class ore last week. Raised 50 tons second-class ore last week. The mine is in good working order."

MALPASO GOLD WASHING COMPANY.—The directors have received advices from their superintendent, Mr. C. R. Clarke, dated April 16, of which the following is an abstract:—"I have put together over 500 ft. of pipe, and expect to have it all ready to put up by the end of this month. I am making every exertion to hurry the work along to completion. I am in hopes of starting the washing about June 1. In my last I reported progress on ditch, and since then the digging has been completed, and the carpenters have built over 500 ft. of flume, most of it on trestle, and some of it over 25 ft. high. I shall begin to put down sluice next week. I should have been at it now, but had to wait on the sawyers for lumber. I assure you I am as anxious as any of the owners to see the mine at work, and shall do all in my power to make it a complete success, and I know it cannot fail to pay 'big.'" Mr. Clarke further writes to a correspondent, under date April 16:—"The mines of this country are rich, and when worked properly are bound to be the source of large revenues to their owners, but in consequence of the impossibility of getting good workmen, the numerous fete days, &c., the development will necessarily be rather slow. But the gold is here, and only wants capital and energy to take it out in paying quantities. The Malpaso Company's ground, as situated here, if placed in California, would be worth millions of dollars. I have no doubt there will be a number of mines opened as soon as the Malpaso is worked, and it has shown what can be done with a hydraulic. I have been asked and solicited to visit and examine them for the owners, but on account of my duties here I have refused to do so." Mr. G. B. O'Reilly (who lately reported on the Rica Mine), writes to a correspondent under date April 18:—"Malpaso Mine: I spent a few days there last week. The Acequia quite finished; only requires a little strengthening on a few points. Washing ought to commence in two months or less. Clarke is quite well, and proves to be quite the right sort of man. The first month's washing will be no fair indication of what is to be expected when a good face is put in. I have seen dozens of hydraulic mines in California, and worked in a few, and feel convinced that Malpaso is as favourably situated for hydraulic as can be desired, with the advantage of being practically inexhaustible in width, depth, and breadth. If it pays dividends at all it will continue to do so for 50 years or more: there will be no delay from want of grade, scarcity of water in summer, or any of the causes which so frequently throw back miners' work in California. As the Spaniards were unacquainted with the flume, and worked up with canalons and a very small stream of water, they lost their grade in a short distance, and finally run out on top of the rich deposit. The grade for a native canalon is at least 10 ft. or 12 ft. in 100 ft. Clarke will run with about 4 ft. 2 in., and will, therefore, command a vast mass of the richer gravel, which now lies under a pile of Spanish tailings. This feature has not yet been commented on, and is a most important one. The extent of ground thus covered up with Spanish tailings is immense. I can see more than 100 acres of it besides what is covered by forest."

RICA GOLD WASHING COMPANY.—The directors have received advice from San Francisco, stating that the whole of the hydraulic apparatus was shipped from there for Colombia on May 4. Mr. O'Reilly writes by the last mail to the vendor:—"La Rica is, I believe, as good a mine as Malpaso, but as the latter will soon be at work, it is useless to speculate on what may or may not be, as the question will be settled by results of that mine."

MAMMOTH COPPEROPOLIS OF UTAH.—The directors have received the following telegram from their manager:—"100 tons sent to New York; 100 tons at Sandy Station. Gold and silver discovered in the mine."

SILVER PLUME.—The directors are now again receiving shipments of ore, the snow and ice having at last disappeared from their roads. One parcel of 130 sacks, about 5 tons, has already been sold in Liverpool, and realised over 103*l.* per ton. Another of 170 sacks, about 6 tons, has arrived, and will be sold this week, and a further parcel of 227 sacks, about 10 tons, is advised by the agent as having been shipped. The manager reports that the several lodes are all in good condition, and that he anticipates at once making a large increase in the shipments.

CAMP FLOYD (Silver).—E. B. Wilder, May 1: For the month of April we have extracted and put to pile 500 tons of ore, grades and valuation low, which please see in statements of ores extracted for April. The developments thus far made are highly satisfactory as regards their extent in quantity and quality of ore. On pay-roll of men at mine you will see some 94 names; many of these were discharged and others substituted in their stead, in order to keep the force up to such a standard as the developments required from time to time. In incline No. 1 we have a large body of good ore, the best, making in a south-easterly direction. A drift on the course of the ore—north-westerly—was started at 48 ft. down from mouth of incline, in good ore, towards incline No. 2, and driven 26 ft. The last 6 ft. the ore is of a low grade. Incline No. 2 is down 55 ft. in vein matter, but no pay ore. Incline No. 3 is looking well. This last was started as an incline-shaft, but in our progress with the work I found the ore making down, and returned to mouth of same, sinking down in ore varying from $54 to $108 silver per ton by assay. The workings are now from mouth of incline 9 ft. deep, 9 ft. wide, and 30 ft. long, all ore. From these a drift south-easterly has been run or driven 16 ft. in ore, yielding by assay $120, $129, and $170 silver. In all the workings, therefore, of No. 3 we have ore on each side, in ends and bottom in every place thus far opened. The open cut in Sparrowhawk has been made with Last Chance cut No. 2. We are getting out some rich ore, running from $200 to $1500 per ton. This work is down 15 ft., and ore still increasing downward. An additional shift by night is now at work here By another open cut we also have struck some horn and antimonial silver, and from work done it bids fair to open out largely. The cross-cut from shaft No. 1, south-westerly towards incline No. 1, has been driven 22 ft. in vein matter, but no pay ore. Last Chance cut No. 1 is about the same, and I am now starting a drift from same south-westerly on the ore. No change in shafts 3 and 4 since my last. The drifting to the spring, covering pipe over two miles, and putting in tanks, I am happy to inform you, is completed, and we have an ample supply of water at present to run the mill. I am now laying down a tramroad to the foot of the mountain, about 450 ft. long, in order to get our ores to mill and have them out of the way, as we are nearly blocked up with ore at the mine. I shall arrange it so that the full car descending will bring up the empty car, with such supplies as coal, planks, water, &c., for the mines, thus diminishing the cost of transportation up the mountain by teams. From the ore in sight I shall take out for May 100 tons, by increasing my working force. The mill is progressing finely, and nearly ready. The furnace building is completed, and as soon as the bricks are on the ground it will take but a short time to lay them. The arrival of Mr. Bousfield will enable me to turn the greater portion of the office work over to him.

ALMADA AND TIRITO (Silver).—By advices to hand the directors learn that the net profit for March is 1263*l.*: 65 tons concentrated black ores were in course of shipment at Guaymas for Europe, per Knight Templar, which was to load at Mazatlan: 15 tons were still awaiting shipment at Agiabampo, and several tons ready for sacking at the mines. The Providentia cross-cut is now fairly productive of black ores. The last assay of concentrated black ores gives $260 per ton for silver, besides copper.

SAN PEDRO.—S. Lean, April 18: Water's shaft: The 135 fm. level is now driven 13·60 metres beyond the ladder winze, 5 metres of which beyond the lode we met with in the cross-cut. The latter is very hard, consequently we have suspended it, and have put six men to drive on the lode west. In this we have driven 24 ft., and met with a white boulder for the last 8 or 9 ft. The lode is poor, but finding it heaved north by west, we have driven in the latter direction 12 ft., where the vein is improving; present value 4 tons of grey ore per fathom. No doubt we shall have to drive further west, to let down the water from the 128 fm. level, but the monte is evidently heaved between the latter and the 135 fm. level. I have no doubt it will regain the perpendicular of the ore ground from the surface to the 110 fm. level, which will then give us a deep and lasting course of bronces. —New lode: Driving at the above level by one man south, 20° west, about 20 metres from shaft and 30 metres from the manto; the lode is 6 in. wide, producing ½ ton of 3 per cent. ore per fathom. There are some branches near this lode which we expect will soon drop in with the principal vein, and make a bunch of ore. This lode is producing the richest class bronces that I have ever seen in this district.—Stopes: In the bottom of the 122 fm. level producing 2 tons of ore per fathom; in the back of the 122 fm. level producing 3 tons of ore per fathom.—Tribute pitches: One in the back of the 110 fm. level, and back of the 88 fm., and bottom of the 47 fm. levels are producing their usual quantity of ore.—Bearers: The fourth sett is now prepared, which we expect to put in in the ensuing week.—Santa Elena: The 26 fm. level, driving north and south, by two men, the former 6·30 and latter 6·60 metres. The latter is producing stones of ore, but not enough to value; both these ends have a very kindly appearance. The lode is 8 ft. wide.—Cuba: Much the same as last advised.

MONTE ALBO.—W. Martin, May 17: Su Ergiolu: The new shaft is completed, cased, and divided down to the No. 6 level, and we shall commence to drive north and south on the course of the lode to-morrow. The lode is looking very promising, producing good stones of ore. The lode in No. 5 level north yields ¼ ton of ore per metre. In the same level south the lode is producing some good stones of lead ore. In No. 4 south the lode is at present poor. Stope No. 1 in back of No. 4 level will yield ¼ ton of ore per metre.—Guzurra: There is no change in Julius Cæsar cross-cut since my last report. We have driven a cross-cut north from Julius Cæsar level, and have intersected lode D, on which we are driving east and west. In the western end the lode yields ½ ton per metre, but in the other end the lode is at present poor. We have driven these two levels about 6 metres from the cross-cut; we have also driven a cross-cut in the Santa Clare level and intersected this same lode, which is producing good stones of ore. Napoleon level is going east on lode, at present poor, but looking very promising. The stope in back of this level yields ½ ton of ore per metre. The rise in back of Gallena Nuovo will yield ¼ ton of ore per metre. All our engines and machinery are working well. The weather has settled very dry, and our water for dressing purposes is getting scarce. The health of the establishment is good.

RHINE.—May 28: The branch of lead recently passed through in the cross-cut from the winze at the 22 is 3 to 4 inches wide, nearly solid, and yielding very fine lumps of galena. The branch will pay for working, if it holds. We have not driven on it; the cross-cut being put forward to intersect the junction lodes; as soon as we have proved the latter point I purpose driving on the branch. We have now three separate branches, one in the winze and two in the cross-cut, in a distance of about 3 fms., each bearing a little lead. The end being driven north-west on the north lode 15 fms. (old) level is looking well, the lode having improved, and yielding a good deal of blende and some lead, and a good piece of sloping ground is being laid open. This point we shall continue to push on.

UNITED MEXICAN.—Mr. Hay, April 24: Mine of Jesus Maria and Remedios: The reports concerning these two mines are very similar to those which have come forward by the late mails, and indicate a gradual decrease in the yield from them.—New Concern: The cross-cut of San Eduardo appears to have traversed the entire vein, and to have reached the mountain lying upon it. It will be continued a few varas further to clear up doubts, and afterwards a level to the east towards where the junction of the main lode with the Loba vein should be found, will be opened upon the lode itself. The end west of the adit is without change. In the Frente de Santa Elodia of San Antonio de la Ovejera the vein has not yet been discovered.

BENSBERG (Lead Mining and Smelting).—J. W. Hoffman, May 25: There is no material change to report at the mine. The pump-shaft in the open-cast has been carried down 12 feet in order to facilitate the draining of the open-cast. We continued uncovering fresh ground, making a road for a tramway, and getting ore for washing and dressing. The boiler made in Cologne has been delivered, and is now being fixed. The engine and boiler from Liverpool have arrived in Rotterdam, and were forwarded by boat on the 21st inst.

WEST CANADA.—April 20: Wellington: One of the stopes in the bottom of the 40, east of Rowe's shaft, will yield 2¾ tons of ore per fathom. No other stope is finished, and the men will soon begin to stope the bottom of the 40 from the western end of the shaft.—Huron Copper Bay: In Bray's shaft, below the 60, the part of the lode in which we are sinking will yield 1½ ton of ore per fathom. The cross-cut south at the 50, west of Palmer's shaft, is now in clean ground, and we shall drive west on the most promising part of the lode, which contains a little ore. The stope in the back of the 60, east of Bray's, will yield 3 tons of ore per fm. The stope in bottom of the 50, west of Palmer's, is worth 2½ tons per fathom. A stope in bottom of the 35, west of this shaft, yields 3¼ tons, and one under the 35, east of Bray's, 2¾ tons. The stope in the bottom of the 35, east of Bray's, and east of Bartle's winze, yields 3 tons per fathom, and another below the same level, west of Bray's or Fire lode, 2½ tons. The stope in the bottom of the 20, east of new engine-shaft, will produce 2 tons per fathom.

LINARES.—May 22: Pozo Ancho Mine: The lode in the 85, driving west of Crosby's shaft, is improving a little, and yields good stones of ore, worth ½ ton per fathom. The lode in the 75, driving west of Crosby's shaft, is small and poor, and the ground very hard. The lode in the 75, driving west of San Francisco shaft, has improved during the past fortnight, now being worth 3 tons per fathom. The lode in the 75, driving east of San Francisco shaft, is compact and regular, consisting of carbonate of lime and lead ore, yielding of the latter 1 ton per fathom. The ground in the 65 fm. level, driving west of San Francisco shaft, is very hard, and the lode small and poor. The lode in the 55, driving west of San Francisco shaft, is of a promising appearance, consisting of carbonate of lime and lead ore, yielding of the latter ¾ ton per fathom. The lode in the 45, driving east of San Francisco shaft, contains a few spots of ore, but not enough to value.—Winzes: The lode in No. 181 winze, sinking below the 55, is very regular, composed of quartz and lead ore, yielding of the latter ½ ton per fathom. The lode in No. 182 winze, sinking below the 31, is small and poor.—Los Quinientos Mine: The lode in the 45, driving east of Addis's shaft, has very much improved since last report, now yielding 1½ ton per fathom. In the 45, driving west of San Carlos shaft, the lode has fallen off very much in size and value, now being worth ½ ton per fathom. The lode in the 45, driving east of San Carlos shaft, is large, consisting of calcareous spar and lead ore, yielding of the latter ½ ton per fathom. In the 32, driving east of Judd's shaft, the lode is yielding good stones of lead ore.—Shafts and Winze: Judd's shaft, sinking below the 32, is going down in old workings, with a good branch of lead standing on the north side, worth ¾ ton per fathom. Considering the hardness of the granite, fair progress in Henty's shaft, sinking below the 32, is being made. There is no change in Perez' winze, sinking below the 32, to notice. Carroscosa's winze, sinking below the 32, is hard and poor at present. Gracia's winze, sinking below the 45, is suspended for the present, in consequence of its having reached water; it yields ½ ton per fathom.

FORTUNA.—May 22: Canada Incosa: The lode in the 110, driving west of Henty's shaft, is small but regular, showing indications of an improvement, yielding ¼ ton of ore per fathom. The lode in the 100, west of Judd's shaft, is compact and solid, but not so large as it has been, now yielding 1½ ton per fathom. The ground in the 80, driving east of Henty's cross-cut, is hard, and the lode regular, composed of hard quartz, spotted with lead ore. The lode in the 60, driving east of San Pedro shaft, is still kindly, composed of quartz, clay, and lead ore, yielding of the latter 2 tons per fathom. The lode in the 90, driving east of Judd's shaft, is poor at present, and the ground very hard for driving through. The lode in the 80, driving west of Lowndes' shaft, is large, and spotted throughout with lead ore. The lode in the 80, east of Carro's shaft, is large and kindly, but wet and troublesome for driving, producing 1½ ton of ore per fathom.—Shafts and Winzes: The men are getting on very well with the sinking of Lowndes' shaft below the 80; it produces 1 ton per fathom. We hope to hole Senano's winze below the 70 to the 80 by the end of this month; it yields 1½ ton per fathom. The lode in Carlo's winze, sinking below the 90, has greatly fallen off both in size and value since last report.—Los Salidos Mine: The lode in the 110, driving west of Santa Amigos shaft, is large and kindly, with a little lead, but not enough to value. The lode is small and the ground hard in the 100, driving west of San Carlos shaft. There are no improvements in the 90, west of San Carlos shaft, in the 110, east of Buenos Amigos shaft. The 110, driving east of Morris's engine-shaft, continues to open up paying ground; it produces 1½ ton per fathom. The lode in the 100 fm. level, driving east of San Pablo shaft, is strong and regular, composed of quartz and lead ore, yielding of the latter 2 tons per fathom. The lode in the 90, east of San Miguel's shaft, is not so large or valuable as when last reported on, yielding now ½ ton per fathom. The 35, driving west of Palgrave's engine-shaft, is opening fair productive ground, wotth 1 ton per fathom. The 35, driving east of Palgrave's engine-shaft, is holed to Medina's winze: the lode is very small.—Shafts and Winzes: We have commenced sinking the Morris engine-shaft below the 110, with a good pare of men, and shall try and get it down as fast as possible. We have also begun to sink Palgrave's shaft below the 35 towards the 45; it produces ¼ ton of ore per fathom. Medina's winze, below the 25, is communicated with the 35. The lode in Lorente's winze, below the 90, is small and compact, worth ½ ton per fathom. Moron's winze, sinking below the 100, is going down in paying ground, yielding 2 tons of ore per fathom. The lode in Caloo's winze, below the 35, is not so large or so rich as it was, now being worth 3 tons per fathom.—Gabriel's winze, below the 100, is going down in a strong and kindly lode, composed of carbonate of lime, quartz, and lead ore, yielding of the latter 1½ ton per fathom.

ALAMILLOS.—May 22: The lode in the 60, driving west of San Rafael's shaft, yields some good stones of ore, worth ½ ton per fathom. The lode in the 50, east of La Magdalena shaft, is small and poor. The lode in the 75, driving east of La Magdalena shaft, is compact and regular, yielding ½ ton per fathom. In the 85, driving east of Taylor's engine-shaft, the lode is spotted with lead, but very hard for driving through. The lode in the 85, west of Taylor's engine-shaft, is large, containing a little lead, but not enough to value. In the 50, driving west of San Yago's shaft, the lode is well defined, and of a rather promising appearance. The lode in the 40, east of San Victor's shaft, is 6 feet wide, composed of carbonate of lime, clay, and lead ore, yielding of the latter 1½ ton per fathom. The lode in the 50, driving east of San Victor's shaft, yields occasional stones of ore. The lode in the 30, west of San Victor's cross-cut (south lode), has fallen off in value within the past few days, now yielding ½ ton of ore per fathom. The 40, driving west of San Victor's cross-cut (middle lode), is opening out very good tribute ground, worth 2 tons per fathom. The lode in the 40, driving west of San Victor's cross-cut (north lode), is small and compact, worth ¾ ton per fathom. The ground is very hard for driving through in the 50 fm. level cross-cut, driving south of San Victor's shaft. The lode in the 20, east of Addis's shaft, is large and open, letting out a great deal of water, it yields ¾ ton per fathom. The 20, east of Addis's cross-cut, is being driven on a very promising looking lode, worth 1½ ton per fathom; intersected a few days since by the cross-cut south. The 40, driving east of Crosby's shaft, is opening out a long run of good tribute ground, worth 1½ ton per fathom. The 30, driving east of Crosby's shaft, has holed to Jaeer's winze, and we expect a great improvement shortly, yielding ½ ton of ore per fathom. The lode in the 40, driving west of Crosby's cross-cut, contains a little lead, but not quite sufficient to value. The lode in the 80, east of Crosby's cross-cut, is large and regular, but quite unproductive at present. The 80, driving west of Crosby's cross-cut, is still in the hard bar of ground, but will get through it shortly.—Shafts and Winzes: Having completed the necessary preparations the sinking of Judd's engine-shaft below the 40 will be commenced at once. The lode in the air-shaft sinking from surface is split into several branches. The footway shaft sinking from surface has holed to the 20 fm. level, a few feet behind the end going east from Addis's shaft; it yields 1 ton of ore per fathom. The lode in Garcia's winze, below the 60 fm. level, is not as good as it has been, owing to its having become very vughy, yielding 1½ ton per fathom. The lode in Coba's winze, below the 30, is small, and contains but little lead at present. Alejandro's winze, sinking below the 40, has again improved, but owing to an increase of water it is difficult to sink; it prodnces 2¼ tons per fathom. The lode in Gabriel's winze, below the 30, is quite unproductive.

LUSITANIAN.—May 21: Palhal: In Taylor's engine-shaft, sinking below the 150, the lode is worth from 2 to 3 tons of ore per fathom.—Levels on Basto's Lode: In both ends of the 150 the lode is 5 ft. wide, composed of quartz. In the 140, east of Taylor's, the lode is 6 ft. wide, composed of loose and hard quartz, and it is of the same character in the 130 going in the same direction, where it is 1 ft. wider. The lode in the 120, east of River shaft, is 5 ft. wide, containing spots of ore; and in the 110 east 2 ft. wide, composed of schist. In the south side of the last-mentioned level there appears to be a spar lode coming in, from which there is water issuing. The lode is 2½ ft. wide in the 90 east, composed of soft schist and quartz. In the 80, east of winze No. 89, the lode is 2 ft. wide, giving good stones of ore; and in the 70, east of River shaft, 4 ft. wide, worth ½ ton per fathom. In the adit, west of Perez' shaft, the lode is small, but gives stones of ore at times. We hope soon to get to the branch in the 38 west of slide lode, as there is water coming through the ground.—Levels on Slide Lode: The 140 is going south-west of Taylor's, in a lode 1½ ft. wide, composed of a tight flookan. In the 130, south-west of Taylor's, we have cut a small branch in the western side going west, with a very regular north underlie. It has spots of mundle and copper ore, and we have now commenced to open on, in order to ascertain whethhr it is Basto's lode. In the 120, north-east of Taylor's, the lode is at present 2 ft. wide, composed of a dry flookan. In the cross-cut south of branch the ground is moderate for driving, and we hope next month to attain our object. No. 89 winze, below the 70, and the rise above the 90, are being holed; six of the men employed here are put to drive an 80 fm. level east of the winze, and six men the 70 east. No. 91 winze, below the 140, is holed to the 150, and the men removed to stope.—Carvalhal: The ground in 60 fm. level cross-cut, north of incline shaft, is a hard gneiss, but is getting a little damp; and in the same cross-cut south it is more favourable for driving through.—Levels on Great Lode: In the 50, east and west of incline shaft, the lode is 1 ft. wide, and in the eastern end containing spots of lead. In the 40 east the lode is small and unproductive, but in the opposite end it is 2 ft. wide, yielding ½ ton of lead ore per fathom. In the 30 and 20 east the lode is 1 ft. wide, composed of quartz and country. In the adit west, on the flookan, the lode is 1¼ ft. wide, of no value.—Cannter Lode: In the 10 west the lode is 6 in. wide, composed of quartz. In the 20 west the lode is 1 ft. wide, with spots of lead, and in the 30 west 1¼ ft. wide, worth ½ ton of lead per fathom.

[For remainder of Foreign Mines see to-day's Journal.]

THE COAL AND IRON TRADES IN WESTPHALIA.—The state of the coal and iron trades throughout Westphalia surpasses even the most sanguine expectations, and there is considered to be every prospect of this encouraging state of affairs continuing for some time to come. The coalmasters are using every exertion to increase their production, and from the improvement in Prussian industry generally, it is considered that they can safely do so without being likely to place the supply in excess of the demand.

COAL IN ZANZIBAR.—The Board of Trade have received a copy of a despatch addressed to the Government of Bombay by the Acting British Consul at Zanzibar, forwarding specimens of surface coal found within the southern district of the Zanzibar Dominions, and stating that His Highness Seyd Burgush has promised to send a party with instructions to dig into the coal seam discovered, and to bring away samples from a depth of about 6 ft., in order that its real value may be tested.

MAMMOTH COPPEROPOLIS MINE OF UTAH.—The following letter dated East Tintic, May 3, appeared in the *Salt Lake Semi-Weekly Herald*, of May 11, with reference to this mine:—"Knowing that you are greatly interested in mining matters in this territory, I send you a few items I think may be interesting to you. The Mammoth Copperopolis Mine, lately purchased by capitalists, is a fine property, and the proprietors, gentlemen of means and energy, and determined to prosecute work vigorously upon the mine and ship ores on a large scale, thereby giving employment to many men and teams, as all the first-class ore will be shipped to Great Britain. We have about 40 men at work upon the mine at present erecting buildings, making improvements, &c.; and as we open up the mine more, so that they can work to advantage, the number of men will be increased. The mine produces very rich ore, considerable of the 1st class ore exceeding 40 per cent., and a large amount of the 2nd class 20 per cent. The ore is of a very ductile character, easily manipulated, and the lower grades will soon be smelted on the spot, the facilities for smelting being excellent, and a new and important industry promoted. We have already, within a few weeks, shipped some 150 tons of ore, and expect in a short time to be shipping hundreds of tons per month, increasing the quantity as the mine is opened up. In my next I will write you about other mining properties and enterprises."

MINING IN CALIFORNIA—CROWN POINT.—Daily yield, 425 tons from the 1100 and 1200 ft. levels, the assays of which average about $100 to the ton. The bullion yield for the present month will foot up to about $800,000. If more and better milling facilities were available the yield could easily be brought up to a million dollars. There is nothing particularly new to report in the appearance, condition, or development of the mine. The ore breasts are all looking magnificently, as usual, and there is ore enough in sight to last five years at the present rate of working, to say nothing of what is not in sight, undeveloped in the unexplored depths below the lowest level. The last dividend, disbursed on April 12, $25 per share, amounted to $300 per share, being the largest monthly dividend ever paid by any one company on the Pacific Coast. The drift south at the 1300 ft. level is run in the west wall of the vein, and cross-cuts east from it show the ore body to be even richer than in the level above.—*San Francisco Stock Report.*

CONSTRUCTION OF FURNACES.—The invention of Messrs. HINCHCLIFFE and WILNES, of Oldham and Manchester, is designed to effect the combustion of smoke in furnaces, and at the same time to dispense with the use of the bridge-wall or midfeather in the flue, and consists principally of a cast-iron plate, level with the fire-bars, or nearly so, and provided with two or more oval-shaped domes or raised chambers of other suitable form, slotted or perforated with a suitable number of holes or slots. These domes or chambers are open beneath, and are placed over openings in the plates, so that the air from the ashpit enters freely, and passing through the holes or perforations in the domes or chambers in a finely divided current, prevents the great heat of the flames at this part from destroying the metal of the domes or chambers.

STEAM GENERATORS SUPERSEDED.—The invention of Messrs. DE MIGNOT and GANTER, of Bordeaux, is described as consisting—firstly, in putting a receiver in pressure at any desired number of atmospheres in order to use this pressure as a motive power for driving all kinds of engines, suppressing furnaces and boilers, and, therefore, coal and water. Secondly, in a combination of gas compressing pumps, electric batteries, and driving engine, with the object of suppressing water as motive power, and substituting compressed gas in lieu thereof, and the application of this system to all steam-engines actually constructed, or which may hereafter be constructed.

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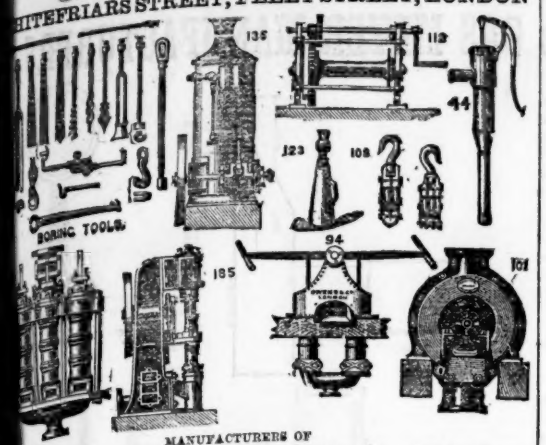

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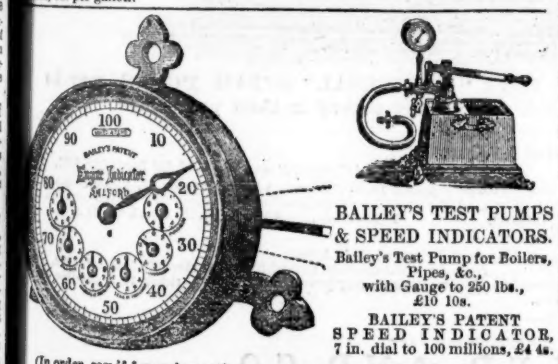

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Self-acting Floors are in course of construction at various mines in England and Scotland, regarding which Mr. GREGORY will be pleased to give information, answer all enquiries, and give orders for inspection.

Mr. GEORGE GREEN, of Aberystwith, the company's mechanical engineer, is prepared to give designs and estimates, or contract for the supply of machinery, and for the laying out of floors.

He is doing a large business in the supply of Dressing Machinery for the treatment of Gold and Silver Ores in Foreign Parts, and all classes of ores at home.

He has devoted himself to the perfecting of Self acting Dressing Machinery, and has, by his inventions, greatly conduced to the success of the system.

T. CURRIE GREGORY, Secretary.

DEATH OR INJURY FROM ACCIDENT,

WITH THE CONSEQUENT

LOSS OF TIME AND MONEY,

PROVIDED FOR BY A POLICY OF THE

RAILWAY PASSENGERS' ASSURANCE COMPANY,

AGAINST ACCIDENTS OF ALL KINDS.

An annual payment of £3 to £6 5s. insures £1000 at death, or an allowance at the rate of £6 per week for injury.

£650,000 have been paid as compensation—

One out of every twelve Annual Policy Holders becoming a claimant each year.

For particulars, apply to the Clerks at the Railway Stations, to the Local Agents, or at the Offices,—

64, CORNHILL, and 10, REGENT STREET, LONDON.

WILLIAM J. VIAN, Secretary.

AWARDED TWENTY GOLD AND SILVER FIRST-CLASS PRIZE MEDALS.

IMMENSE SAVING OF LABOUR

TO MINERS, IRONMASTERS, MANUFACTURING CHEMISTS, RAILWAY COMPANIES, EMERY AND FLINT GRINDERS, McADAM ROAD MAKERS, &C., &C.

BLAKE'S PATENT STONE BREAKER,

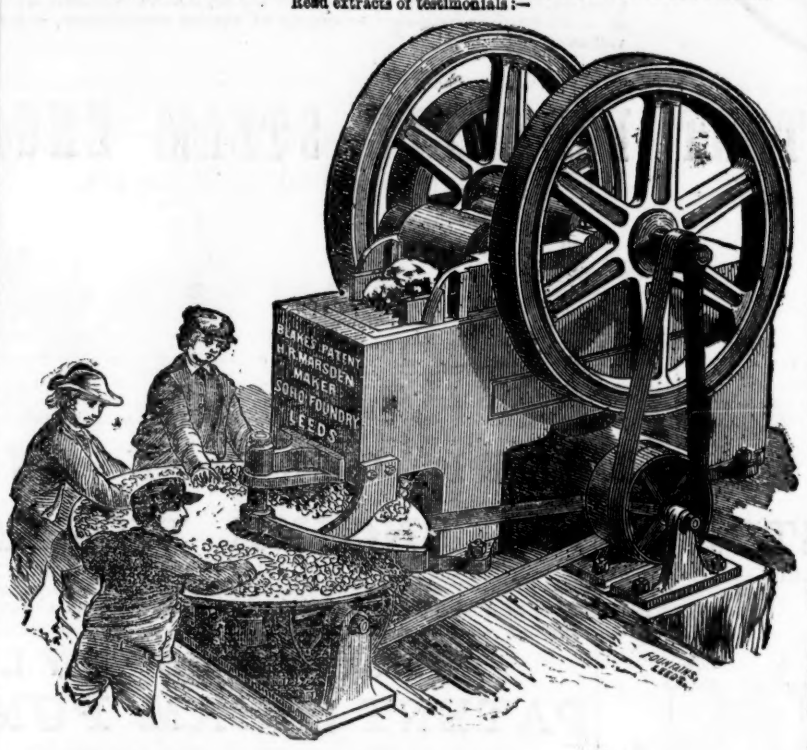
OR ORE-CRUSHING MACHINE,

FOR REDUCING TO SMALL FRAGMENTS ROCKS, ORES, AND MINERALS OF EVERY KIND.

This is the only machine that has proved a success. This machine was shown in full operation at the Royal Agricultural Society's Show at Manchester, and at the Highland Agricultural Society's Show at Edinburgh, where it broke 1¼ ton of the hardest trap or whinstone in eight minutes, and was AWARDED TWO FIRST-CLASS SILVER MEDALS. It has also just received a SPECIAL GOLD MEDAL at Santiago, Chili.

It is rapidly making its way to all parts of the globe, being now in profitable use in California, Washoe, Lake Superior, Australia, Cuba, Chili, Brazil, and throughout the United States and England.

Read extracts of testimonials:—



The Parys Mines Company, Parys Mines, near Bangor, June 6.—We have had one of your stone breakers in use during the last 12 months, and Capt. Morcom reports most favourably as to its capabilities of crushing the materials to the required size, and its great economy in doing away with manual labour.

For the Parys Mining Company,
H. R. Marsden, Esq. JAMES WILLIAMS.

The Van Mining Company (Limited), Van Mines, Llanidloes, Feb. 6, 1871.—Our machine, a 10 by 7, is now breaking 180 tons of stone for the crusher every 24 hours. I may say, of all our machinery, that for simplicity of construction and dispatch in their work, they are equal to anything in the kingdom, but your stone breaker surpasses them all. W. WILLIAMS.
H. R. Marsden, Esq., Leeds.

Chacewater, Cornwall, Jan. 27, 1869.—I have great pleasure in stating that the patent stone breaker I bought of you some three years ago for mines in Chili,' continues to do its work well, and gives great satisfaction. It crushes the hardest copper ore stone—put it through ½ inch size by horse power—with great ease. I can safely recommend it to all in want of a crusher; can be driven by steam, water, or horse power.
H. R. Marsden, Esq. JAMES PHILLIPS.

Terras Tin Mining Co. (Limited), near Grampound Road, Cornwall, Jan. 1871.—Blake's patent stone crusher, supplied by you to this company, is a fascination—the wonder and admiration of the neighbourhood. Its simplicity is also surprising. Persons visiting it when not at work have been heard to remark, "This can't be all of the machine." It will crush to a small size from 8 to 10 tons of very hard and tough elvan rock per hour; taking into its leviathan jaws pieces of the hardest rock, weighing 200 lbs. or more, masticating the same into small bits with as much apparent ease and pleasure as does a horse his mouthful of oats. On every 100 tons of the rock crushed by the machine there is a direct saving to the company of not less than £5 over the process of hand labour previously adopted by them, and the indirect saving much more, the machine being ever ready to perform the duties required of it. It breaks the stuff much smaller, and in form so fitted for the stamps, that they will pulverise one-third more in a given time than when performed by hand labour.
JOS. GILBERT MARTIEN.
H. R. Marsden, Esq., Leeds.

Welsh Gold Mining Company, Dolgelly.—The stone breaker does its work admirably, crushing the hardest stones and quarts. WM. DANIEL.

Ovoca, Ireland.—My crusher does its work most satisfactorily. It will break 10 tons of the hardest copper ore stone per hour.
WM. G. ROBERTS.

General Frémont's Mines, California.—The 15 by 7 in. machine effects a saving of the labour of about 30 men, or $75 per day. The high estimation in which we hold your invention is shown by the fact that Mr. Park has just ordered a third machine for this estate. SILAS WILLIAMS.

Your stone breaker gives us great satisfaction. We have broken 101 tons of Spanish pyrites with it in seven hours. EDWARD AARON.
H. R. Marsden, Esq. Weston, near Runcorn.

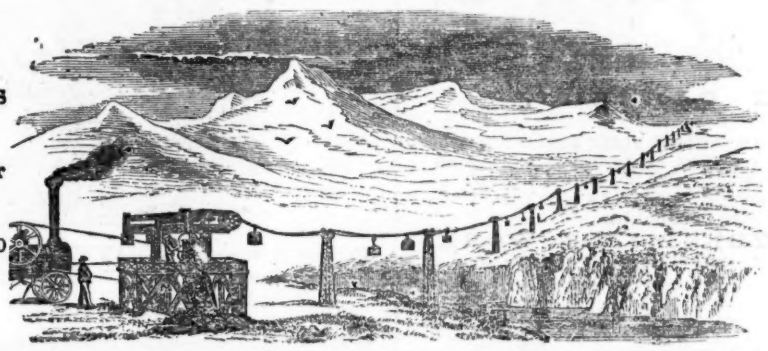
For illustrated catalogue, circulars, and testimonials, apply to—

H. R. MARSDEN, SOHO FOUNDRY,

MEADOW LANE, LEEDS,

ONLY MAKER IN THE UNITED KINGDOM.

WIRE TRAMWAYS COST (exclusive of power and rolling-stock) From £250 to £900 per mile,



For quantities ranging from 10,000 to 100,000 tons per annum

And are at present successfully employed in lengths from a quarter of a mile to fourteen miles in transport of coal, ironstone, fireclay, coke, general mining produce, beetroot, sugar-cane, &c. They are working in most difficult and mountainous districts, where any other means of transport is impossible, as well as through ordinary country.

ABOUT SEVENTY LINES HAVE ALREADY BEEN CONSTRUCTED.

THE WIRE TRAMWAY COMPANY

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Are PREPARED to SURVEY and ESTIMATE for LINES and EXECUTE CONTRACTS at HOME and ABROAD. They have engineers employed in constructing these lines in England, Holland, Prussia, Austria, Russia, Italy, Spain, United States, Peru, Chili, River Plate, India, Bolivia, West Indies, and Egypt. The system has been adopted by the English and Anglo-Indian Governments, the Spanish and Prussian Governments, and for many of the first mines and ironworks at home and abroad.

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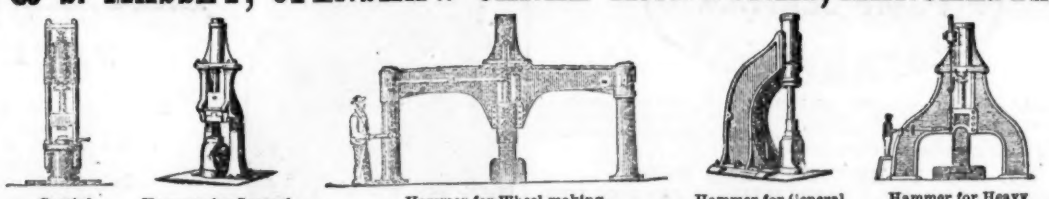
PRIZE MEDALS—PARIS, 1867; HAVRE, 1868; HIGHLAND SOCIETY, 1870.

B. & S. MASSEY, OPENSHAW CANAL IRONWORKS, MANCHESTER.



Special Steam Stamp. | Hammer for General Smith Work, &c. | Hammer for Wheel-making, Copper Work, &c. | Hammer for General Smith Work, &c. | Hammer for Heavy Forgings.

PATENTEES AND MAKERS OF DOUBLE AND SINGLE-ACTING STEAM HAMMERS of all sizes, from 17 lbs. to 20 tons, with Self-acting or Hand Motions, in either case giving a perfectly DEAD-BLOW, while the former may be worked by hand when desired. Large Hammers, with Improved Framing, in Cast or Wrought Iron. Small Hammers working up to 500 blows per minute, in some cases being worked by the foot of the smith, and not requiring any separate driver.

SPECIAL STEAM STAMPS, of great importance for Smith Work, Bolt-making, Punching, Bending, &c.

Hammers for Engineers, Machinists, Shipbuilders, Steel Tilters, Millwrights, Coppersmiths, Railway Carriage and Wagon Builders, Colliery Proprietors, Ship Smiths, Bolt Makers, Cutlers, File Makers, Spindle and Flyer Makers, Spade Makers, Locomotive and other Wheel Makers, &c.; also for use in Repairing Smithies of Mills and Works of all kinds, for Straightening Bars, Bending Cranks, Breaking Pig-iron, &c.

STEAM HAMMERS AND STEAM STAMPS MAY ALWAYS BE SEEN AT WORK.

PEPPER MILL BRASS FOUNDRY COMPANY,

DARLINGTON STREET, WIGAN,

COLLIERY FURNISHERS,

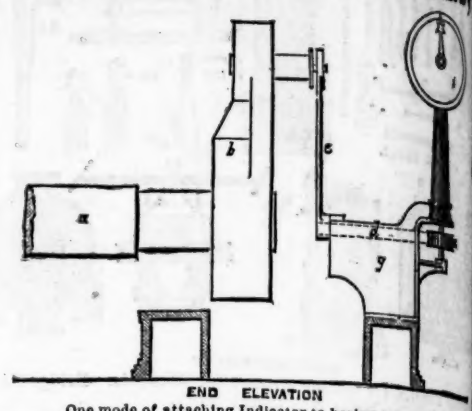
BRASS FOUNDERS, COPPERSMITHS, & GAS METER MANUFACTURERS,

The PEPPER MILL BRASS FOUNDRY COMPANY beg respectfully to invite attention to their IMPROVED SELF-REGISTERING COLLIERY WINDING INDICATOR, which, in addition to its ordinary use of indicating the position of the load in the shaft, registers the number of windings, thus enabling the manager at a glance, and at any moment, to check the return of the banksman or tallyman, by reading off from the dial the number of windings for any stated time.

This Indicator is especially adapted for Water Winding or Pumping. Its indications cannot possibly be tampered with, and unerringly show the number of windings or strokes for any stated period, so that it will at once be seen whether or not the person in charge has been fully discharging his duty.

These Winding Indicators are supplied either with or without the Self-registration Dial.

The Pepper Mill Brass Foundry Company will be glad to furnish, on application, sets of drawings illustrative of the simplest and cheapest mode of attaching their indicators to engines of various constructions, either vertical or horizontal.



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One mode of attaching Indicator to horizontal engine.

CHAPLIN'S PATENT PORTABLE STEAM ENGINES AND BOILERS.

PRIZE MEDAL, INTERNATIONAL EXHIBITION, 1862.

STATIONARY ENGINE, From 1 to 30-horse power. No building required.

PORTABLE HOIST, 1 to 30-horse power. With or without jib.

STEAM CRANE,* 30 cwts. to 20 tons. For wharf or rail.

CONTRACTORS' LOCOMOTIVE, 6 to 27-horse power. For steep inclines and quick curves.

TRACTION ENGINE, 6 to 27-horse power. Light and heavy

SHIP'S ENGINE. Winding, Cooking, and Distilling. Passed by Government for half water.

* These cranes were selected by H.M. Commissioners to receive and send away the heavy machinery in the International Exhibition.

From the STRENGTH, SIMPLICITY, and COMPACTNESS of these ENGINES they are extensively USED for GENERAL PURPOSES, and also in situations where STEAM-ENGINES OF THE ORDINARY CONSTRUCTION CANNOT BE APPLIED.

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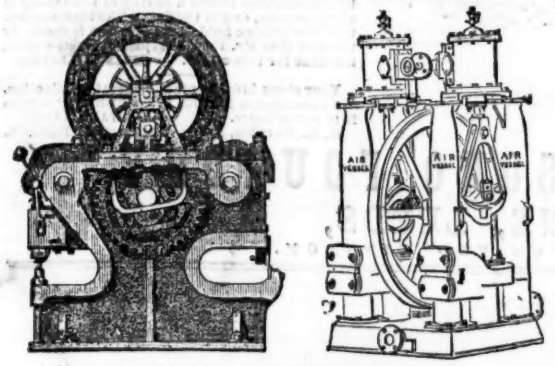
PATENTEES AND SOLE MANUFACTURERS,

CRANSTON HILL ENGINE WORKS, GLASGOW.

ENGINES OF EACH CLASS KEPT IN STOCK for SALE or HIRE, and ALL OUR MANUFACTURES GUARANTEED as to EFFICIENCY, MATERIAL, and WORKMANSHIP.

Parties are cautioned against using or purchasing imitations or infringements of these patent manufactures.

AGENTS IN LONDON FOR THE SALE OF OUR MANUFACTURES: WIMSHURST AND CO.



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MAKER OF

STEAM PUMPS, PORTABLE ENGINES, PLATE BENDING ROLLERS, BAR AND ANGLE IRON SHEARS, PUNCHING AND SHEARING MACHINES, PATENTEE OF THE DOUBLE CAM LEVER PUNCHING MACHINE, BAR SHEARS, AND RAIL PUNCHING MACHINES,

EGERTON STREET IRON WORKS,

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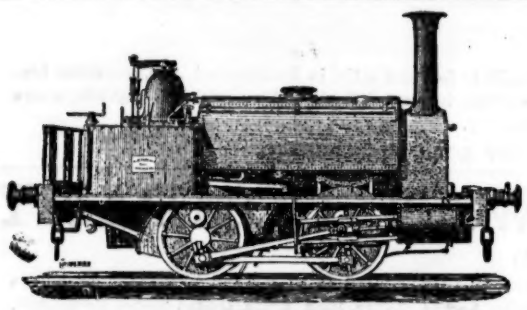

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FOR SALE OR HIRE.

HENRY HUGHES AND CO.,

LOUGHBOROUGH.

HEPBURN'S

PUMP LEATHER

WATERPROOF

By a special method of preparation, this leather is made solid, perfectly close in texture, and impermeable to water; it has, therefore, all the qualifications essential for pump buckets, and is the most durable material of which they can be made. It may be had of all dealers in leather, and of—

I. AND T. HEPBURN AND SONS,

TANNERS AND CURRIERS, LEATHER MILLBAND AND HOSE PIPE MANUFACTURERS,

LONG LANE, SOUTHWARK, LONDON.

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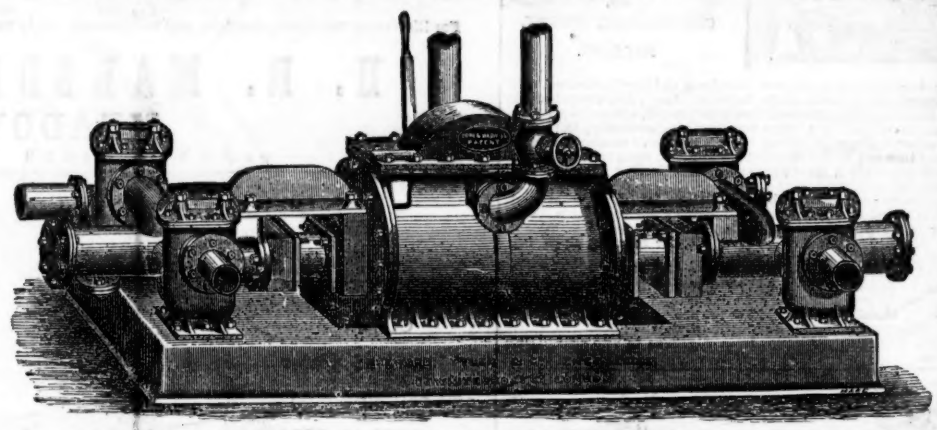
MILL BANDS, HOSE, AND LEATHER FOR MACHINERY PURPOSES.

HAYWARD TYLER AND CO.'S

PATENT STEAM PUMPING MACHINERY.



The great success of HAYWARD TYLER and CO.'S PATENT "UNIVERSAL" STEAM PUMPS, may be seen from the following fresh Testimonials, in addition to many others in their possession.

TESTIMONIALS.

To Messrs. HAYWARD TYLER and Co., 84, Upper Whitecross-street, London. *Aston Main Coal Company, near Sheffield, 1st December, 1871.*

GENTLEMEN,—In answer to your enquiry, I beg to state that the two "Universal" Pumps supplied to us (through your agent, Mr. T. A. Ashton) are doing our work exceedingly well. We think they are the best in the market, and shall be glad if you will send us another 9-inch cylinder 6-inch pump in one week from this date. (Signed) Yours truly, ASTON MAIN COAL COMPANY.

Extract of a Letter from JOHN SIMPSON, Esq., to Hayward Tyler and Co.'s Agent.

Rhos Llantwit Colliery, Caerphilly, near Cardiff, March 4, 1872.

I should like to have the water-piston and clacks the same as in our present pump, as they work exceedingly well, and I do not think it is possible to improve upon the present pump, except by lining the cylinder with brass as ordered.

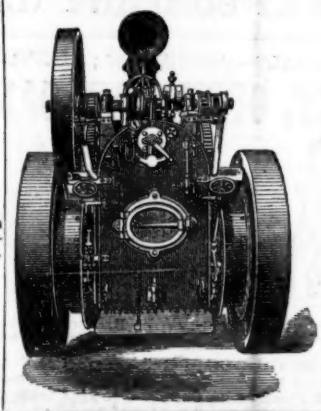
Full particulars post free on application to—

HAYWARD TYLER AND CO.,

84 AND 85, UPPER WHITECROSS STREET, LONDON, E.C.

ROBEY AND COMPANY, LIMITED,

ENGINEERS, LINCOLN.



PATENT PORTABLE

HAULING AND WINDING ENGINE

WITH

PATENT DRUM WINDLASSES,

FOR MINING PURPOSES.

This Engine is specially commended to Mining Engineers and others, as by its adoption—

Haulage along inclined drifts is easily and cheaply effected;

The expense of sinking new shafts is greatly reduced, neither foundations nor engine-house being required;

It is available not only for winding, but for pumping, sawing, &c.—a great desideratum at a large colliery;

It can be very quickly removed (being self-propelling), and fixed in any desired position.

Prices and full particulars on application as above, and also references to view the engine in successful work near Derby, Carnarvon, Haverfordwest, Darlington, and other places.

Printed by RICHARD MIDDLETON, and published by HENRY ENGLISH (the proprietors), at their office, 26, FLEET STREET, E.C., where all communications are requested to be addressed.—*June 1, 1872.*